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Apsara Stack Enterprise

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Document conventions

Style	Description	Example
Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	**Danger:** Resetting will result in the loss of user configuration data.
Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	**Warning:** Restarting will cause business interruption. About 10 minutes are required to restart an instance.
Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	**Notice:** If the weight is set to 0, the server no longer receives new requests.
Note	A note indicates supplemental instructions, best practices, tips, and other content.	**Note:** You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click **Settings**> **Network**> **Set network type**.
Bold	Bold formatting is used for buttons , menus, page names, and other UI elements.	Click **OK**.
`Courier font`	Courier font is used for commands	Run the `cd /d C:/window` command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	This format is used for an optional value, where only one item can be selected.	`ipconfig [-all|-t]`
{} or {a|b}	This format is used for a required value, where only one item can be selected.	`switch {active|stand}`

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1.Apsara Uni-manager Management Console

1.1. Developer Guide

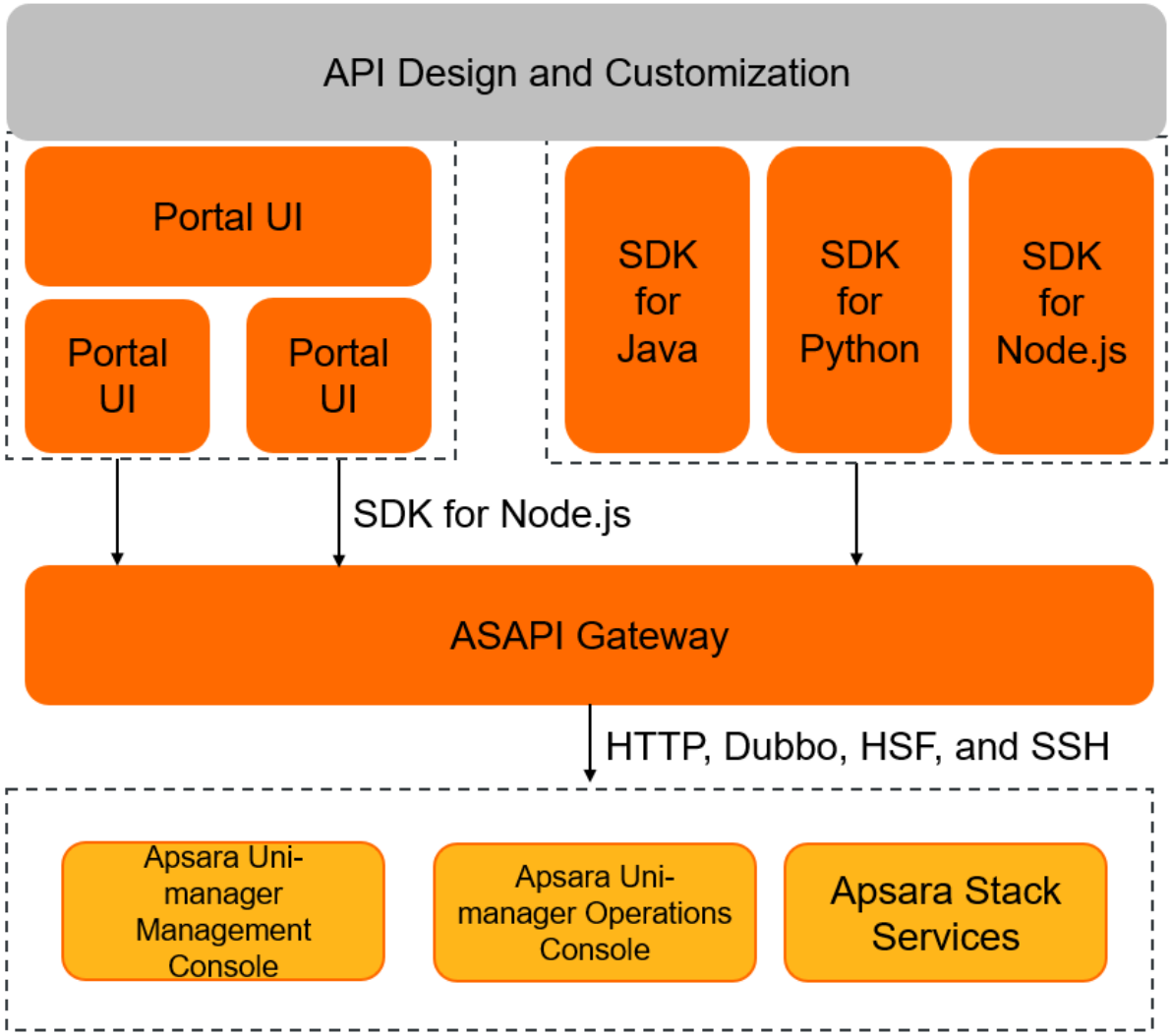
1.1.1. Call service SDKs by using ASAPI

1.1.1.1. 文档标题缺失，请补全后重新导出

1.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

1.1.1.1.2. Preparations

1.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

1.1.1.1.2.2. View information about API operations

This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

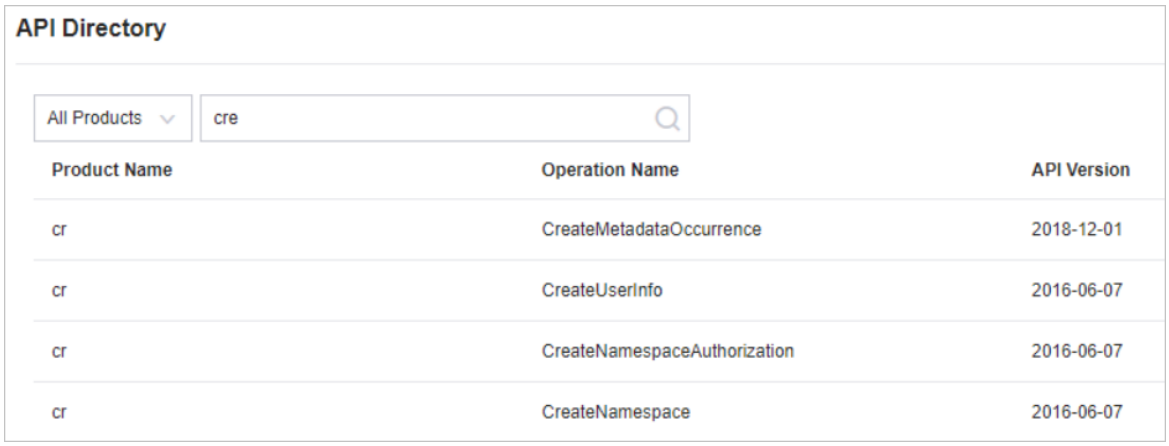
Context

The API operations on the API Directory page are only for reference. For information about how to call

API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



4. Then, you can view the service name, API operation name, and API operation version.

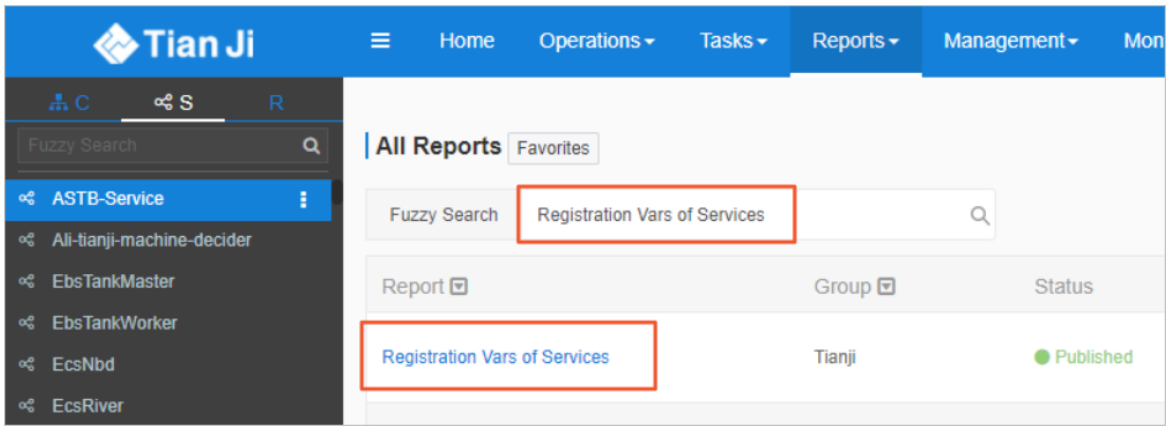
1.1.1.1.2.3. Generate an endpoint for the ASAPI

This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

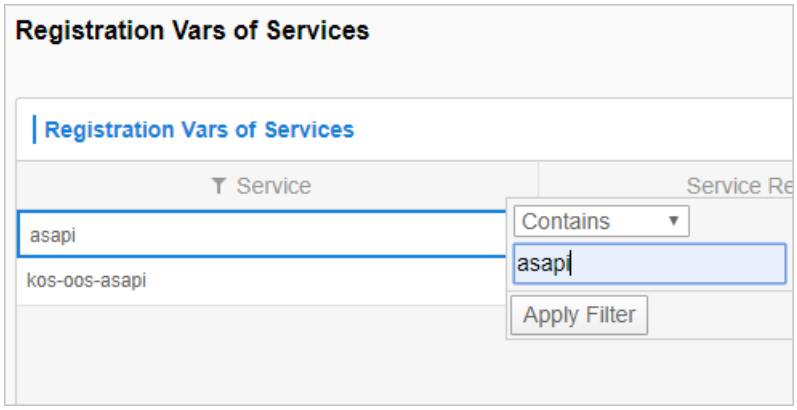
Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.

3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.

   In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

1.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

1.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

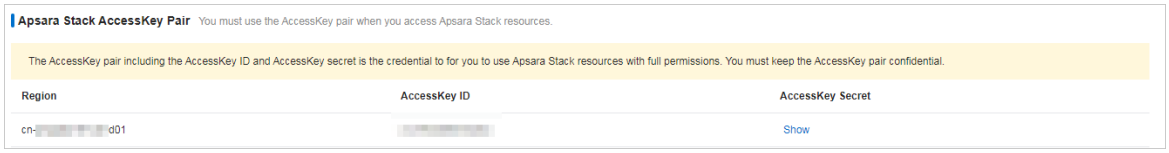
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

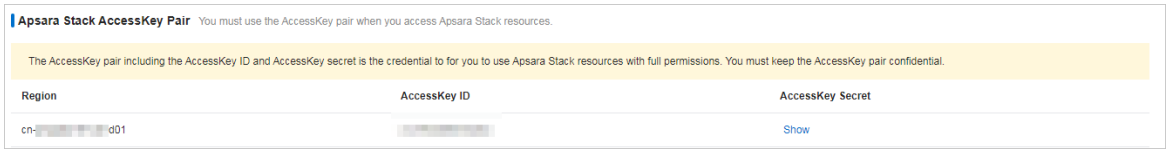
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

1.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



1.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

. .

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

1.1.1.1.4. SDK description

1.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an

AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

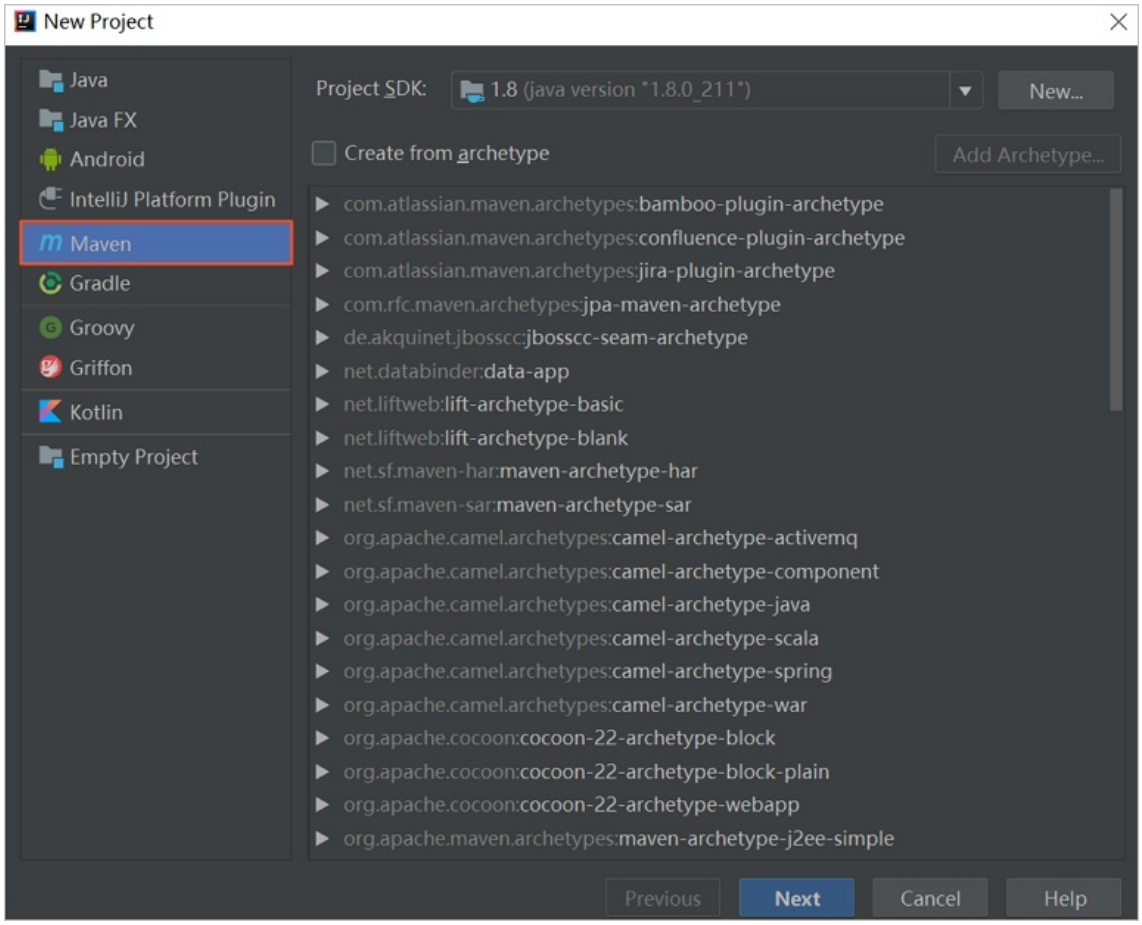
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

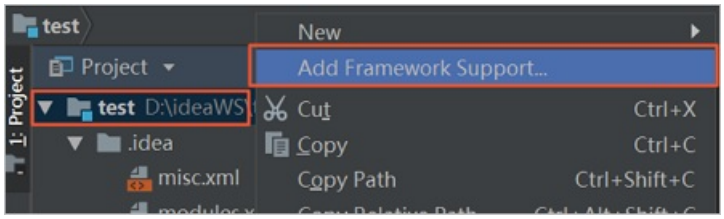
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

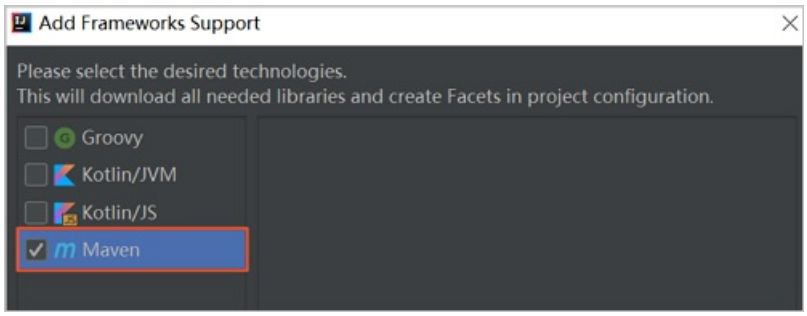
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



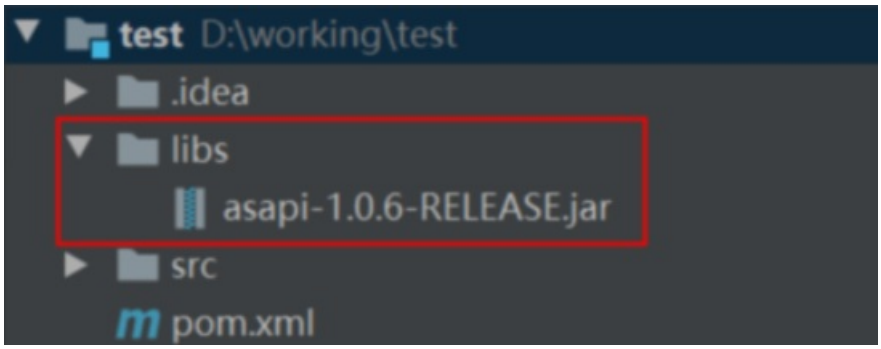
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



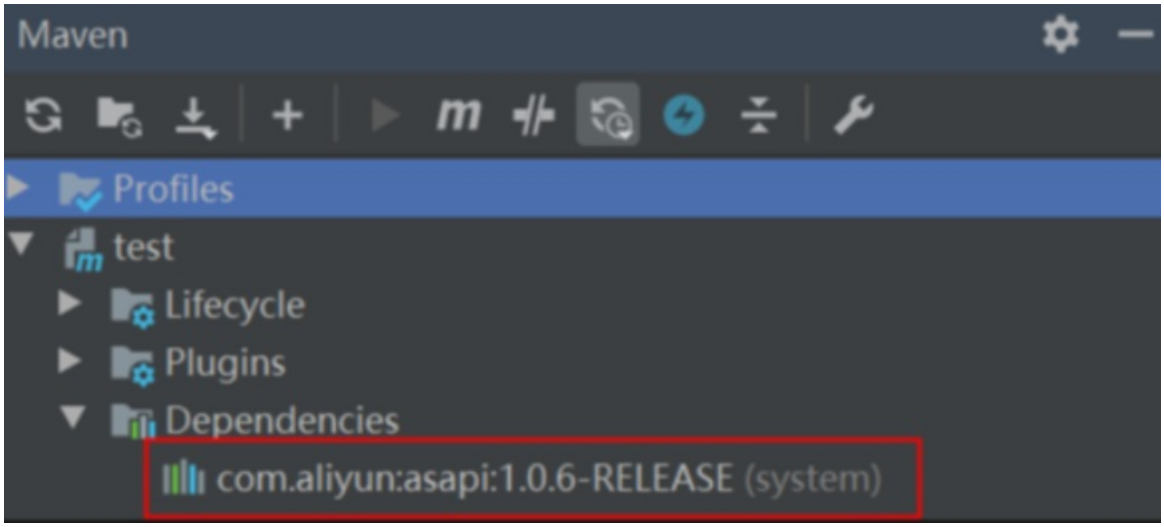
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

Note Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

   If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

1.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

1.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

1.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

Notice

If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

1.1.1.1.5. HTTP requests

1.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

1.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

1.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

1.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

1.1.2. API reference

1.1.2.1. Common parameters

Common request parameters

Common request parameters must be included in the request of each API.

Common request parameters

Parameter	Type	Required	Description
Version	String	Yes	The version number of the API, in YYYY-MM-DD format. Set the value to 2019-05-10.
AccessKeyId	String	Yes	The AccessKey ID provided to you by Apsara Stack.
AccessKeySecret	String	Yes	The AccessKey secret provided to you by Apsara Stack.
RegionID	String	Yes	The region ID provided to you by Apsara Stack.
Product	String	Yes	The name of the service to which the API operation belongs.

You must obtain the values of the `Product` and `Version` parameters in the Apsara Uni-manager Management Console. Perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the top navigation bar, choose **Products > Others > API Tool**.
3. In the left-side navigation pane of the API Tool page, click **API Directory**.
4. In the **Operation Name** search box, enter the name of an operation to query its information.

Common response parameters

API responses use the HTTP response format:

- A 2xx status code indicates a successful call.
- A 4xx or 5xx status code indicates a failed call.

Responses are returned in the JSON format. Every response returns a unique RequestID regardless of whether the call is successful.

1.1.2.2. Apsara Uni-manager Management Console authentication

Before you can make ASAPI requests, you must obtain the AccessKey pair (AccessKey ID and AccessKey secret) of an organization account in the Apsara Uni-manager Management Console.

The organization account grants access permissions on available resources. Then, the resources can be accessed by using the AccessKey pair. For more information, see Obtain an AccessKey pair.

> **Notice** If you use the AccessKey pair of a personal account to call an API operation, you must configure header parameters for access control. Otherwise, a message is prompted to indicate that you have insufficient permissions.

Header parameters

Parameter	Description
x-acs-regionid	The region ID. Example: cn-hangzhou-*.

Parameter	Description
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain the ID of an organization, see GetOrganizationList.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain the ID of a resource set, see ListResourceGroup.
x-acs-instanceid	The ID of the instance on which to perform operations. For example, you can query the ID of an Elastic Compute Service (ECS) instance from the ECS instance list.

1.1.2.3. Enterprise

1.1.2.3.1. Organizations

1.1.2.3.1.1. UpdateOrganization

You can call this operation to update an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateOrganization	The operation that you want to perform. Set the value to UpdateOrganization.
Id	String	Yes	1	The ID of the organization.
Name	String	Yes	helloworld	The name of the organization.
RequestId	String	No	sdfsadfsdfsdfsdf	The ID of the request.
PersonNum	String	No	10	The maximum number of users.
ResourceGroupNum	String	No	10	The maximum number of resource groups.

Parameter	Type	Required	Example	Description
Alias	String	No	test	The alias.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
data	Struct		The response.
alias	String	test	The alias of the organization.
ctime	Long	1607512443989	The creation time.
cuserId	String	admin	The creator.
id	Integer	1	The ID of the organization.
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The modification time.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization.
muserId	String	admin	The modifier.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.

Parameter	Type	Example	Description
supportRegionList	List	cn-qingdao-env17-d01	The list of regions.
supportRegions	String	["cn-qingdao-env17-d01"]	The list of regions.
uuid	String	1231	The universally unique identifier (UUID) of the organization.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	1	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UpdateOrganization
&Id=1
&Name=helloworld
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <internal>true</internal>
    <level>0.1</level>
    <supportRegions>["cn-qingdao-env17-d01"]</supportRegions>
    <mtime>1606791494471</mtime>
    <uuid>1231</uuid>
    <parentId>0</parentId>
    <multiCloudStatus>master</multiCloudStatus>
    <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
    <name>test</name>
    <ctime>1607512443989</ctime>
    <alias>test</alias>
    <id>1</id>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<requestId>1</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "10000",
    "code": "200",
    "data": {
        "muserId": "admin",
        "internal": "true",
        "level": "0.1",
        "supportRegions": "[\"cn-qingdao-env17-d01\"]",
        "mtime": "1606791494471",
        "uuid": "1231",
        "parentId": "0",
        "multiCloudStatus": "master",
        "supportRegionList": "cn-qingdao-env17-d01",
        "name": "test",
        "ctime": "1607512443989",
        "alias": "test",
        "id": "1",
        "cuserId": "admin"
    },
    "success": "true",
    "requestId": "1",
    "pureListData": "true",
    "message": "200"
}
```

1.1.2.3.1.2. UpdateSupportRegionsForOrg

You can call this operation to update supported regions for an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateSupportRegionsForOrg	The operation that you want to perform. Set the value to UpdateSupportRegionsForOrg.
OrganizationId	Integer	Yes	5	The ID of the organization.
SupportRegions	String	Yes	RegionId1,RegionId2	The list of region IDs.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	32	The time consumed by the operation.
message	String	success	The message.
pureListData	Boolean	false	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UpdateSupportRegionsForOrg
&OrganizationId=5
&SupportRegions=RegionId1,RegionId2
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>32</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "32",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.1.3. GetOrganization

You can call this operation to query an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetOrganization	The operation that you want to perform. Set the value to GetOrganization.
Id	String	Yes	1	The ID of the organization.
RequestId	String	No	dsfsdfsd	The ID of the request.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
data	Struct		The response.

Parameter	Type	Example	Description
alias	String	test	The alias of the organization.
ctime	Long	1607512443989	The creation time.
cuserId	String	admin	The creator.
id	Integer	1	The ID of the organization.
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The modification time.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization.
muserId	String	admin	The modifier.
name	String	test	The name of the organization.
parentId	Integer	1	The ID of the parent organization.
supportRegionList	List	cn-qingdao-env17-d01	The list of regions.
supportRegions	String	["cn-qingdao-env17-d01"]	The list of regions.
uuid	String	1231	The universally unique identifier (UUID) of the organization.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.

Parameter	Type	Example	Description
redirect	Boolean	true	Indicates whether redirections are performed.
requestId	String	1234	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=GetOrganization
&Id=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <internal>true</internal>
    <level>0.1</level>
    <supportRegions>["cn-qingdao-env17-d01"]</supportRegions>
    <mtime>1606791494471</mtime>
    <uuid>1231</uuid>
    <parentId>1</parentId>
    <multiCloudStatus>master</multiCloudStatus>
    <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
    <name>test</name>
    <ctime>1607512443989</ctime>
    <alias>test</alias>
    <id>1</id>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<requestId>1234</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "data": {
        "muserId": "admin",
        "internal": "true",
        "level": "0.1",
        "supportRegions": "[\"cn-qingdao-env17-d01\"]",
        "mtime": "1606791494471",
        "uuid": "1231",
        "parentId": "1",
        "multiCloudStatus": "master",
        "supportRegionList": "cn-qingdao-env17-d01",
        "name": "test",
        "ctime": "1607512443989",
        "alias": "test",
        "id": "1",
        "cuserId": "admin"
    },
    "success": "true",
    "requestId": "1234",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.1.4. GetOrganizationList

Queries the list of organizations.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetOrganizationList	The operation that you want to perform. Set the value to GetOrganizationList.
RequestId	String	No	sdfasdfafsdf	The ID of the request.
Id	String	No	1	The ID of the organization.

Parameter	Type	Required	Example	Description
Name	String	No	test	The name of the organization. If both the organization ID and the organization name are specified, the organization ID prevails. If both the organization ID and the organization name are not specified, no data is returned.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
alias	String	test	The alias of the organization.
ctime	Long	1607512443989	The time when the organization was created.
cuserId	String	admin	The creator of the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.

Parameter	Type	Example	Description
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	cn-qingdao-env17-d01	The list of regions.
supportRegions	String	["cn-qingdao-env17-d01"]	The list of regions.
uuid	String	1231	The UUID of the organization.
message	String	success	The error message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.
requestId	String	1	The ID of the request.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetOrganizationList
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <internal>true</internal>
    <level>0.1</level>
    <supportRegions>["cn-qingdao-env17-d01"]</supportRegions>
    <mtime>1606791494471</mtime>
    <uuid>1231</uuid>
    <parentId>0</parentId>
    <multiCloudStatus>master</multiCloudStatus>
    <name>test</name>
    <ctime>1607512443989</ctime>
    <alias>test</alias>
    <id>1</id>
    <cuserId>admin</cuserId>
</data>
<data>
    <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
</data>
<success>true</success>
<requestId>1</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "data": [
        {
            "muserId": "admin",
            "internal": "true",
            "level": "0.1",
            "supportRegions": "[\"cn-qingdao-env17-d01\"]",
            "mtime": "1606791494471",
            "uuid": "1231",
            "parentId": "0",
            "multiCloudStatus": "master",
            "name": "test",
            "ctime": "1607512443989",
            "alias": "test",
            "id": "1",
            "cuserId": "admin"
        },
        {
            "supportRegionList": "cn-qingdao-env17-d01"
        }
    ],
    "success": "true",
    "requestId": "1",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.1.5. RemoveOrganization

You can call this operation to delete an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveOrganization	The operation that you want to perform. Set the value to RemoveOrganization.
Id	String	Yes	10	The ID of the organization.
RequestId	String	No	retertertet	The ID of the request.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	1	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveOrganization
&Id=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>10000</cost>
<code>200</code>
<success>true</success>
<requestId>1</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "10000",
    "code": "200",
    "success": "true",
    "requestId": "1",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.1.6. ListResourceGroupByOrgId

You can call this operation to query the list of resource sets in an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListResourceGroupByOrgId	The operation that you want to perform. Set the value to ListResourceGroupByOrgId.
Id	String	Yes	3	The ID of the organization.
resource_group_name	String	No	testrs	The name of the resource set.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
data	Array of dataItem		The response.
creator	String	admin	The creator.
gmtCreated	Float	1607512443989	The creation time.
gmtModified	Float	1607512443989	The modification time.

Parameter	Type	Example	Description
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
organizationName	String	admin	The name of the organization.
resourceGroupName	String	test	The name of the resource set.
resourceGroupType	Integer	1	The type of the resource set.
message	String	200	The message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The number of the page returned.
pageSize	Integer	10	The number of entries returned per page.
total	Integer	10	The total number of entries returned.
totalPage	Integer	10	The total number of pages returned.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ListResourceGroupByOrgId
&Id=3
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <organizationID>1</organizationID>
    <gmtModified>1607512443989</gmtModified>
    <creator>admin</creator>
    <resourceGroupName>test</resourceGroupName>
    <organizationName>admin</organizationName>
    <gmtCreated>1607512443989</gmtCreated>
    <resourceGroupType>1</resourceGroupType>
    <id>1</id>
</data>
<success>true</success>
<pageInfo>
    <total>10</total>
    <totalPage>10</totalPage>
    <pageSize>10</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>true</pureListData>
<message> 200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "data": [
        {
            "organizationID": "1",
            "gmtModified": "1607512443989",
            "creator": "admin",
            "resourceGroupName": "test",
            "organizationName": "admin",
            "gmtCreated": "1607512443989",
            "resourceGroupType": "1",
            "id": "1"
        }
    ],
    "success": "true",
    "pageInfo": {
        "total": "10",
        "totalPage": "10",
        "pageSize": "10",
        "currentPage": "1"
    },
    "pureListData": "true",
    "message": " 200"
}
```

1.1.2.3.1.7. CreateOrganization

You can call this operation to create an organization.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateOrganization	The operation that you want to perform. Set the value to CreateOrganization.
Name	String	Yes	hellowolrd	The name of the organization.
ParentId	String	Yes	1	The ID of the parent organization.
RequestId	String	No	100000000	The ID of the request.
PersonNum	String	No	1	A reserved parameter.
ResourceGroupNum	String	No	1	A reserved parameter.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
data	Struct		The response.
alias	String	test	The alias of the organization.
ctime	Long	1607512443989	The creation time.
cuserId	String	admin	The creator.
id	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The modification time.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization.
muserId	String	admin	The modifier.
name	String	test	The name of the organization.
parentId	Integer	1	The ID of the parent organization.
supportRegionList	List	cn-qingdao-env17-d01	The list of regions.
supportRegions	String	["cn-qingdao-env17-d01"]	The list of regions.
uuid	String	1231	The universally unique identifier (UUID) of the organization.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.
requestId	String	1234	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateOrganization
&Name=hellowolrd
&ParentId=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <internal>true</internal>
    <level>0.1</level>
    <supportRegions>["cn-qingdao-env17-d01"]</supportRegions>
    <mtime>1606791494471</mtime>
    <uuid>1231</uuid>
    <parentId>1</parentId>
    <multiCloudStatus>master</multiCloudStatus>
    <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
    <name>test</name>
    <ctime>1607512443989</ctime>
    <alias>test</alias>
    <id>1</id>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<requestId>1234</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "data": {
        "muserId": "admin",
        "internal": "true",
        "level": "0.1",
        "supportRegions": "[\"cn-qingdao-env17-d01\"]",
        "mtime": "1606791494471",
        "uuid": "1231",
        "parentId": "1",
        "multiCloudStatus": "master",
        "supportRegionList": "cn-qingdao-env17-d01",
        "name": "test",
        "ctime": "1607512443989",
        "alias": "test",
        "id": "1",
        "cuserId": "admin"
    },
    "success": "true",
    "requestId": "1234",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.2. Resource sets

1.1.2.3.2.1. BindAscmUserAndResourceGroup

You can call this operation to bind a resource set to a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	BindAscmUserAndResourceGroup	The operation that you want to perform. Set the value to BindAscmUserAndResourceGroup.
ascm_user_ids	String	Yes	"[\"5017\",\"5023\"]"	The list of user IDs.
resource_group_id	Integer	Yes	7	The ID of the resource set.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
message	String	200	The message.
redirect	Boolean	true	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=BindAscmUserAndResourceGroup
&ascm_user_ids="[\"5017\",\"5023 \"]"
&resource_group_id=7
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<code>200</code>
<cost>113</cost>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": false,
    "code": "200",
    "cost": 113,
    "success": true,
    "pureListData": false,
    "message": "success"
}
```

1.1.2.3.2.2. CreateResourceGroup

You can call this operation to create a resource set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateResourceGroup	The operation that you want to perform. Set the value to CreateResourceGroup.
organization_id	Integer	Yes	3	The ID of the organization.
resource_group_name	String	Yes	testrs	The name of the resource set.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
data	Struct		The response.
gmtCreated	Long	1607512443989	The creation time.
id	Integer	1	The ID of the resource set.
organizationID	String	1	The ID of the organization.
resourceGroupName	String	test	The name of the resource set.
rsId	String	rs-1010e71e5e520aab483b000f	The unique ID of the registry.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.

Parameter	Type	Example	Description
requestId	String	1234	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateResourceGroup
&organization_id=3
&resource_group_name=testrs
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<data>
    <organizationID>1</organizationID>
    <resourceGroupName>test</resourceGroupName>
    <gmtCreated>1607512443989</gmtCreated>
    <rsId>rs-1010e71e5e520aab483b000f</rsId>
    <id>1</id>
</data>
<success>true</success>
<requestId>1234</requestId>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "data": {
        "organizationID": "1",
        "resourceGroupName": "test",
        "gmtCreated": "1607512443989",
        "rsId": "rs-1010e71e5e520aab483b000f",
        "id": "1"
    },
    "success": "true",
    "requestId": "1234",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.2.3. UnbindAscmUserAndResourceGroup

You can call this operation to unbind a user from a resource set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnbindAscmUserAndResourceGroup	The operation that you want to perform. Set the value to UnbindAscmUserAndResourceGroup.
AscmUserIds	String	Yes	1	The list of user IDs.
ResourceGroupId	Integer	Yes	1	The ID of the resource set.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.

Parameter	Type	Example	Description
redirect	Boolean	true	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UnbindAscmUserAndResourceGroup
&AscmUserIds=1
&ResourceGroupId=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<success>true</success>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "success": "true",
    "pureListData": "true",
    "message": "200"
}
```

1.1.2.3.2.4. UpdateResourceGroup

Modifies the information of a resource set.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateResourceGroup	The operation that you want to perform. Set the value to UpdateResourceGroup.
id	String	Yes	16	The ID of the resource set to be modified.
resource_group_name	String	Yes	old_res	The current name of the resource set to be modified.
resourceGroupName	String	Yes	new_res	The new name of the resource set to be modified.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The amount of time taken to perform the operation.
message	String	200	The message.
pageInfo	Struct		The data information.
gmtModified	Float	1606791494471	The time when the resource set was modified.
id	Integer	1	The ID of the resource set.
resourceGroupName	String	test	The name of the resource set.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.

Parameter	Type	Example	Description
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UpdateResourceGroup
&id=16
&resource_group_name=DefaultRewwww
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>true</redirect>
<cost>10000</cost>
<code>200</code>
<success>true</success>
<pageInfo>
    <gmtModified>1606791494471</gmtModified>
    <resourceGroupName>test</resourceGroupName>
    <id>1</id>
</pageInfo>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "cost": "10000",
    "code": "200",
    "success": "true",
    "pageInfo": {
        "gmtModified": "1606791494471",
        "resourceGroupName": "test",
        "id": "1"
    },
    "pureListData": "true",
    "message": "200"
}
```

1.1.2.3.2.5. RemoveResourceGroup

You can call this operation to delete a resource set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveResourceGroup	The operation that you want to perform. Set the value to RemoveResourceGroup.
resource_group_id	Integer	Yes	5	The ID of the resource set.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	10000	The time consumed by the operation.
message	String	200	The message.
redirect	Boolean	true	Indicates whether redirections are performed.
requestId	String	1234	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveResourceGroup
&resource_group_id=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<code>200</code>
<cost>221</cost>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": false,
    "code": "200",
    "cost": 221,
    "success": true,
    "pureListData": false,
    "message": "success"
}
```


1.1.2.3.2.6. ListResourceGroup

Queries the list of available resource sets of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListResourceGroup	The operation that you want to perform. Set the value to ListResourceGroup.
resourceGroupName	String	No	test	The name of the resource set to be queried.
organizationId	Integer	No	1	The ID of the organization. After this parameter is specified, you can obtain the list of resource sets in the current organization, excluding its subordinate organizations. If this parameter is not specified or is set to 1, the list of all resource sets visible to the user is obtained.
pageNumber	Integer	No	1	The number of the page to return. Default value: 1.
pageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
PageInfo	Struct		The page information.

Parameter	Type	Example	Description
CurrentPage	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
Total	Integer	10	The total number of entries returned.
TotalPage	Integer	1	The total number of pages.
code	String	200	The HTTP status code.
cost	Integer	10000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
creator	String	admin	The creator of the resource set.
gmtCreated	Float	1606719003858	The time when the resource set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
organizationName	String	test	The name of the organization.
resourceGroupName	String	test	The name of the resource set.
rsId	String	rs-1010e71e5e520aab483b000f	The ID of the resource set.
message	String	200	The message.
pureListData	Boolean	true	Indicates whether only data is returned.
redirect	Boolean	true	Indicates whether redirections are performed.

Parameter	Type	Example	Description
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListResourceGroup
&<Common request parameters>
```

Sample success response

`XML` format

```
<redirect>true</redirect>
<PageInfo>
    <TotalPage>1</TotalPage>
    <PageSize>10</PageSize>
    <CurrentPage>1</CurrentPage>
    <Total>10</Total>
</PageInfo>
<cost>10000</cost>
<code>200</code>
<data>
    <organizationID>1</organizationID>
    <creator>admin</creator>
    <resourceGroupName>test</resourceGroupName>
    <organizationName>test</organizationName>
    <gmtCreated>1606719003858</gmtCreated>
    <rsId>rs-1010e71e5e520aab483b000f</rsId>
    <id>1</id>
</data>
<success>true</success>
<pureListData>true</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "true",
    "PageInfo": {
        "TotalPage": "1",
        "PageSize": "10",
        "CurrentPage": "1",
        "Total": "10"
    },
    "cost": "10000",
    "code": "200",
    "data": [
        {
            "organizationID": "1",
            "creator": "admin",
            "resourceGroupName": "test",
            "organizationName": "test",
            "gmtCreated": "1606719003858",
            "rsId": "rs-1010e71e5e520aab483b000f",
            "id": "1"
        }
    ],
    "success": "true",
    "pureListData": "true",
    "message": "200"
}
```


1.1.2.3.2.7. ListAscmUsersInsideResourceGroup

You can call this operation to query the list of users within a resource set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListAscmUsersInsideResourceGroup	The operation that you want to perform. Set the value to ListAscmUsersInsideResourceGroup.
ResourceGroupId	Integer	Yes	7	The ID of the resource set.
CurrentPage	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The time consumed by the operation.
cost	Integer	1000	The time consumed by the operation.
data	Array of dataItem		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID.
ctime	Long	1606675230000	The creation time.
cuserId	String	1	The ID of the creator.
id	Integer	1	The ID of the AccessKey pair.
region	String	cn-qingdao-env17-d01	The region.
status	String	ACTIVE	The status.
cellphoneNum	String	00000000000	The phone number.
default	Boolean	false	Indicates whether the user is a preset user.
defaultRole	Struct		The list of roles.
active	Boolean	true	Indicates whether the operation is active.
arId	String	111	The unique code.
code	String	ROLE_RESOURCE_USER	The code of the role.

Parameter	Type	Example	Description
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description.
enable	Boolean	true	Indicates whether the operation is enabled.
id	Integer	1	The ID of the role.
muserId	String	admin	The creator.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the organization.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role.
roleType	String	ROLETYPE_ASCM	The type of the role.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	test	The display name.
email	String	test@163.com	The email address.
enableDingTalk	Boolean	false	Indicates whether notifications are sent by DingTalk.
enableEmail	Boolean	false	Indicates whether notifications are sent by email.

Parameter	Type	Example	Description
enableShortMessage	Boolean	false	Indicates whether notifications are sent by SMS.
id	Integer	1	The ID of the user.
loginName	String	test	The username.
loginPolicy	Struct		The logon policy.
cuserId	String	admin	The creator.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the operation is enabled.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	111	The unique code.
muserId	String	admin	The creator.
name	String	deafult.loginpolicy	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the organization.
ownerOrganizationId	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The start of the time range for the query.
mobileNationCode	String	86	The country code.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The creation time.
cuserId	String	admin	The creator.
id	Integer	1	The ID of the organization.
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The modification time.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization.
muserId	String	admin	The modifier.
name	String	test	The name of the organization.

Parameter	Type	Example	Description
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	1231	The universally unique identifier (UUID) of the organization.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the RAM user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the operation is active.
arId	String	111	The unique code.
code	String	ROLE_RESOURCE_USER	The code of the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description.
enable	Boolean	true	Indicates whether the operation is enabled.
id	Integer	1	The ID of the role.
muserId	String	admin	The creator.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the organization.

Parameter	Type	Example	Description
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role.
roleType	String	ROLETYPE_ASCM	The type of the role.
status	String	ACTIVE	The status.
userGroupRoles	List	admin	The list of roles of the user group.
userGroups	List	admin	The list of user groups.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the operation is active.
arId	String	1121	The unique code.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The creator.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description.
enable	Boolean	true	Indicates whether the operation is enabled.

Parameter	Type	Example	Description
id	Integer	1	The ID of the role.
muserId	String	admin	The modifier.
organizationVisibility	String	defaultRole.resourceUser.description	The sharing scope of the organization.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	1123	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role.
roleType	String	ROLETYPE_ASCM	The type of the role.
message	String	200	The message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	10	The number of entries returned per page.
total	Integer	10	The total number of entries returned.
totalPage	Integer	10	The total number of pages returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	111	The ID of the request.

Parameter	Type	Example	Description
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ListAscmUsersInsideResourceGroup
&ResourceGroupId=7
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<code>200</code>
<cost>49</cost>
<data>
    <cellphoneNum>13813800138</cellphoneNum>
    <defaultRole>
        <roleRange>roleRange.resourceSet</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_SET_ADMIN</code>
        <active>true</active>
        <description>defaultRole.resourceSetAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceSetAdmin.name</roleName>
        <id>5</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </defaultRole>
    <displayName>asapibaixue1</displayName>
    <enableDingTalk>true</enableDingTalk>
    <roles>
        <roleRange>roleRange.resourceSet</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_SET_ADMIN</code>
        <active>true</active>
        <description>defaultRole.resourceSetAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceSetAdmin.name</roleName>
        <id>5</id>
        <roleLevel>2147483647</roleLevel>
```

```
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
        <id>4</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.resourceSet</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_USER</code>
        <active>true</active>
        <description>defaultRole.resourceUser.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceUser.name</roleName>
        <id>2</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <loginPolicy>
        <ipRanges>
            <protocol>IPV4</protocol>
            <ipRange>0.0.0.0/0</ipRange>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId/>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <loginPolicyId>1</loginPolicyId>
            <startTime>00:00</startTime>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>defaultLoginPolicy.name</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </loginPolicy>
    <parentPk>1824191931284921</parentPk>
```

```
    <lastLoginTime>1592232390657</lastLoginTime>
    <userRoles>
        <roleRange>roleRange.resourceSet</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_USER</code>
        <active>true</active>
        <description>defaultRole.resourceUser.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceUser.name</roleName>
        <id>2</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </userRoles>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
        <id>4</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </userRoles>
    <userRoles>
        <roleRange>roleRange.resourceSet</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_SET_ADMIN</code>
        <active>true</active>
        <description>defaultRole.resourceSetAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceSetAdmin.name</roleName>
        <id>5</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </userRoles>
    <accessKeys>
        <ctime>1591931519000</ctime>
```

```
        <id>609</id>
        <region>cn-qingdao-env17-d01</region>
        <accesskeyId>1KAjDIqCGMOvGxX8</accesskeyId>
        <status>ACTIVE</status>
    </accessKeys>
    <default>false</default>
    <deleted>false</deleted>
    <loginName>asapibaixue1</loginName>
    <organization>
        <muserId/>
        <internal>false</internal>
        <multiCloudStatus/>
        <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
        <level>0.1</level>
        <name>asapi_test</name>
        <alias>asapi_test</alias>
        <supportRegions>cn-qingdao-env17-d01</supportRegions>
        <id>353</id>
        <cuserId/>
        <uuid>null</uuid>
        <parentId>1</parentId>
    </organization>
    <id>5617</id>
    <mobileNationCode>86</mobileNationCode>
    <enableEmail>true</enableEmail>
    <email>mail@example.com</email>
    <enableShortMessage>true</enableShortMessage>
    <primaryKey>261424091942319265</primaryKey>
    <status>ACTIVE</status>
</data>
<data>
    <cellphoneNum>13813813800</cellphoneNum>
    <defaultRole>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_ORG_SEC_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunOrgSecAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunOrgSecAdmin.name</roleName>
        <id>8</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </defaultRole>
    <displayName>asapitest</displayName>
    <enableDingTalk>true</enableDingTalk>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
```

```
        <code>ROLE_YUNDUN_ORG_SEC_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunOrgSecAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunOrgSecAdmin.name</roleName>
        <id>8</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <loginPolicy>
        <ipRanges>
            <protocol>IPV4</protocol>
            <ipRange>0.0.0.0/0</ipRange>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId/>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <loginPolicyId>1</loginPolicyId>
            <startTime>00:00</startTime>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>defaultLoginPolicy.name</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </loginPolicy>
    <parentPk>1824191931284921</parentPk>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_ORG_SEC_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunOrgSecAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunOrgSecAdmin.name</roleName>
        <id>8</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </userRoles>
    <accessKeys>
        <ctime>1591930977000</ctime>
        <id>607</id>
        <region>cn-qingdao-env17-d01</region>
```

```
        <region>cn-qingdao-env17-d01</region>
        <cuserId>admin</cuserId>
        <accesskeyId>o4LEJ8SoWVyb1dDZ</accesskeyId>
        <status>ACTIVE</status>
    </accessKeys>
    <default>false</default>
    <deleted>false</deleted>
    <loginName>asapitest</loginName>
    <organization>
        <muserId/>
        <internal>false</internal>
        <multiCloudStatus/>
        <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
        <level>0.1</level>
        <name>asapi_test</name>
        <alias>asapi_test</alias>
        <supportRegions>cn-qingdao-env17-d01</supportRegions>
        <id>353</id>
        <cuserId/>
        <uuid>null</uuid>
        <parentId>1</parentId>
    </organization>
    <id>5615</id>
    <mobileNationCode>86</mobileNationCode>
    <enableEmail>true</enableEmail>
    <email>mail@example.com</email>
    <enableShortMessage>true</enableShortMessage>
    <primaryKey>250944791941776838</primaryKey>
    <status>ACTIVE</status>
</data>
<data>
    <cellphoneNum>13813813800</cellphoneNum>
    <displayName>asapibaixue</displayName>
    <enableDingTalk>false</enableDingTalk>
    <loginPolicy>
        <ipRanges>
            <protocol>IPV4</protocol>
            <ipRange>0.0.0.0/0</ipRange>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId/>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <loginPolicyId>1</loginPolicyId>
            <startTime>00:00</startTime>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>defaultLoginPolicy.name</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </loginPolicy>
```

```
    <parentPk>1824191931284921</parentPk>
    <accessKeys>
        <ctime>1591931388000</ctime>
        <id>608</id>
        <region>cn-qingdao-env17-d01</region>
        <accesskeyId>cNaeitV1RBRmFr6a</accesskeyId>
        <status>ACTIVE</status>
    </accessKeys>
    <default>false</default>
    <deleted>false</deleted>
    <loginName>asapibaixue</loginName>
    <organization>
        <muserId/>
        <internal>false</internal>
        <multiCloudStatus/>
        <supportRegionList>cn-qingdao-env17-d01</supportRegionList>
        <level>0.1</level>
        <name>asapi_test</name>
        <alias>asapi_test</alias>
        <supportRegions>cn-qingdao-env17-d01</supportRegions>
        <id>353</id>
        <cuserId/>
        <uuid>null</uuid>
        <parentId>1</parentId>
    </organization>
    <id>5616</id>
    <mobileNationCode>86</mobileNationCode>
    <enableEmail>false</enableEmail>
    <email>mail@example.com</email>
    <enableShortMessage>false</enableShortMessage>
    <primaryKey>221543391942188032</primaryKey>
    <status>ACTIVE</status>
</data>
<success>true</success>
<pageInfo>
    <total>3</total>
    <totalPage>1</totalPage>
    <pageSize>10</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": false,
    "code": "200",
    "cost": 49,
    "data": [
      {
        "cellphoneNum": "13813800138",
        "defaultRole": {
```

```
      "roleRange": "roleRange.resourceSet",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_RESOURCE_SET_ADMIN",
      "active": true,
      "description": "defaultRole.resourceSetAdmin.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.resourceSetAdmin.name",
      "id": 5,
      "roleLevel": 2147483647,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    "displayName": "asapibaixue1",
    "enableDingTalk": true,
    "roles": [
      {
        "roleRange": "roleRange.resourceSet",
        "rAMRole": false,
        "code": "ROLE_RESOURCE_SET_ADMIN",
        "active": true,
        "description": "defaultRole.resourceSetAdmin.description",
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.resourceSetAdmin.name",
        "id": 5,
        "roleLevel": 2147483647,
        "organizationVisibility": "organizationVisibility.global"
      },
      {
        "roleRange": "roleRange.orgAndSubOrgs",
        "rAMRole": false,
        "code": "ROLE_ORGANIZATION_ADMIN",
        "active": true,
        "description": "defaultRole.organizationAdmin.description",
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.organizationAdmin.name",
        "id": 4,
        "roleLevel": 2147483647,
        "organizationVisibility": "organizationVisibility.global"
      },
      {
        "roleRange": "roleRange.resourceSet",
        "rAMRole": false,
        "code": "ROLE_RESOURCE_USER",
        "active": true,
        "description": "defaultRole.resourceUser.description"
```

```
      "description": "defaultRole.resourceUser.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.resourceUser.name",
      "id": 2,
      "roleLevel": 2147483647,
      "organizationVisibility": "organizationVisibility.global"
    }
  ],
  "loginPolicy": {
    "ipRanges": [
      {
        "protocol": "IPV4",
        "ipRange": "0.0.0.0/0",
        "loginPolicyId": 1
      }
    ],
    "muserId": "",
    "default": true,
    "ownerOrganizationId": 1,
    "timeRanges": [
      {
        "loginPolicyId": 1,
        "startTime": "00:00",
        "endTime": "24:00"
      }
    ],
    "enable": true,
    "name": "defaultLoginPolicy.name",
    "rule": "ALLOW",
    "id": 1,
    "cuserId": "",
    "organizationVisibility": "organizationVisibility.global"
  },
  "parentPk": "1824191931284921",
  "lastLoginTime": 1592232390657,
  "userGroups": [],
  "userRoles": [
    {
      "roleRange": "roleRange.resourceSet",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_RESOURCE_USER",
      "active": true,
      "description": "defaultRole.resourceUser.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.resourceUser.name",
      "id": 2,
      "roleLevel": 2147483647,
      "cuserId": "",
```

```
            "organizationVisibility": "organizationVisibility.global"
          },
          {
            "roleRange": "roleRange.orgAndSubOrgs",
            "muserId": "",
            "rAMRole": false,
            "code": "ROLE_ORGANIZATION_ADMIN",
            "active": true,
            "description": "defaultRole.organizationAdmin.description",
            "roleType": "ROLETYPE_ASCM",
            "default": true,
            "ownerOrganizationId": 1,
            "enable": true,
            "roleName": "defaultRole.organizationAdmin.name",
            "id": 4,
            "roleLevel": 2147483647,
            "cuserId": "",
            "organizationVisibility": "organizationVisibility.global"
          },
          {
            "roleRange": "roleRange.resourceSet",
            "muserId": "",
            "rAMRole": false,
            "code": "ROLE_RESOURCE_SET_ADMIN",
            "active": true,
            "description": "defaultRole.resourceSetAdmin.description",
            "roleType": "ROLETYPE_ASCM",
            "default": true,
            "ownerOrganizationId": 1,
            "enable": true,
            "roleName": "defaultRole.resourceSetAdmin.name",
            "id": 5,
            "roleLevel": 2147483647,
            "cuserId": "",
            "organizationVisibility": "organizationVisibility.global"
          }
        ],
        "accessKeys": [
          {
            "ctime": 1591931519000,
            "id": 609,
            "region": "cn-qingdao-env17-d01",
            "accesskeyId": "1KAjDIqCGMOvGxX8",
            "status": "ACTIVE"
          }
        ],
        "default": false,
        "deleted": false,
        "loginName": "asapibaixue1",
        "organization": {
          "muserId": "",
          "internal": false,
          "multiCloudStatus": "",
          "supportRegionList": [
```

```
            "cn-qingdao-env17-d01"
          ],
          "level": "0.1",
          "name": "asapi_test",
          "alias": "asapi_test",
          "supportRegions": "cn-qingdao-env17-d01",
          "id": 353,
          "cuserId": "",
          "uuid": "null",
          "parentId": 1
        },
        "userGroupRoles": [],
        "id": 5617,
        "mobileNationCode": "86",
        "enableEmail": true,
        "email": "mail@example.com",
        "enableShortMessage": true,
        "primaryKey": "261424091942319265",
        "status": "ACTIVE"
      },
      {
        "cellphoneNum": "13813813800",
        "defaultRole": {
          "roleRange": "roleRange.orgAndSubOrgs",
          "muserId": "",
          "rAMRole": false,
          "code": "ROLE_YUNDUN_ORG_SEC_ADMIN",
          "active": true,
          "description": "defaultRole.yundunOrgSecAdmin.description",
          "roleType": "ROLETYPE_ASCM",
          "default": true,
          "ownerOrganizationId": 1,
          "enable": true,
          "roleName": "defaultRole.yundunOrgSecAdmin.name",
          "id": 8,
          "roleLevel": 2147483647,
          "cuserId": "",
          "organizationVisibility": "organizationVisibility.global"
        },
        "displayName": "asapitest",
        "enableDingTalk": true,
        "roles": [
          {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": false,
            "code": "ROLE_YUNDUN_ORG_SEC_ADMIN",
            "active": true,
            "description": "defaultRole.yundunOrgSecAdmin.description",
            "roleType": "ROLETYPE_ASCM",
            "default": true,
            "ownerOrganizationId": 1,
            "enable": true,
            "roleName": "defaultRole.yundunOrgSecAdmin.name",
            "id": 8,
```

```
        "roleLevel": 2147483647,
        "organizationVisibility": "organizationVisibility.global"
      }
    ],
    "loginPolicy": {
      "ipRanges": [
        {
          "protocol": "IPV4",
          "ipRange": "0.0.0.0/0",
          "loginPolicyId": 1
        }
      ],
      "muserId": "",
      "default": true,
      "ownerOrganizationId": 1,
      "timeRanges": [
        {
          "loginPolicyId": 1,
          "startTime": "00:00",
          "endTime": "24:00"
        }
      ],
      "enable": true,
      "name": "defaultLoginPolicy.name",
      "rule": "ALLOW",
      "id": 1,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    "parentPk": "1824191931284921",
    "userGroups": [],
    "userRoles": [
      {
        "roleRange": "roleRange.orgAndSubOrgs",
        "muserId": "",
        "rAMRole": false,
        "code": "ROLE_YUNDUN_ORG_SEC_ADMIN",
        "active": true,
        "description": "defaultRole.yundunOrgSecAdmin.description",
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.yundunOrgSecAdmin.name",
        "id": 8,
        "roleLevel": 2147483647,
        "cuserId": "",
        "organizationVisibility": "organizationVisibility.global"
      }
    ],
    "accessKeys": [
      {
        "ctime": 1591930977000,
        "id": 607,
```

```
            "region": "cn-qingdao-env17-d01",
            "cuserId": "admin",
            "accesskeyId": "o4LEJ8SoWVyb1dDZ",
            "status": "ACTIVE"
          }
        ],
        "default": false,
        "deleted": false,
        "loginName": "asapitest",
        "organization": {
          "muserId": "",
          "internal": false,
          "multiCloudStatus": "",
          "supportRegionList": [
            "cn-qingdao-env17-d01"
          ],
          "level": "0.1",
          "name": "asapi_test",
          "alias": "asapi_test",
          "supportRegions": "cn-qingdao-env17-d01",
          "id": 353,
          "cuserId": "",
          "uuid": "null",
          "parentId": 1
        },
        "userGroupRoles": [],
        "id": 5615,
        "mobileNationCode": "86",
        "enableEmail": true,
        "email": "mail@example.com",
        "enableShortMessage": true,
        "primaryKey": "250944791941776838",
        "status": "ACTIVE"
      },
      {
        "cellphoneNum": "13813813800",
        "displayName": "asapibaixue",
        "enableDingTalk": false,
        "loginPolicy": {
          "ipRanges": [
            {
              "protocol": "IPV4",
              "ipRange": "0.0.0.0/0",
              "loginPolicyId": 1
            }
          ],
          "muserId": "",
          "default": true,
          "ownerOrganizationId": 1,
          "timeRanges": [
            {
              "loginPolicyId": 1,
              "startTime": "00:00",
              "endTime": "24:00"
```

```
        }
      ],
      "enable": true,
      "name": "defaultLoginPolicy.name",
      "rule": "ALLOW",
      "id": 1,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    "parentPk": "1824191931284921",
    "userGroups": [],
    "userRoles": [],
    "accessKeys": [
      {
        "ctime": 1591931388000,
        "id": 608,
        "region": "cn-qingdao-env17-d01",
        "accesskeyId": "cNaeitV1RBRmFr6a",
        "status": "ACTIVE"
      }
    ],
    "default": false,
    "deleted": false,
    "loginName": "asapibaixue",
    "organization": {
      "muserId": "",
      "internal": false,
      "multiCloudStatus": "",
      "supportRegionList": [
        "cn-qingdao-env17-d01"
      ],
      "level": "0.1",
      "name": "asapi_test",
      "alias": "asapi_test",
      "supportRegions": "cn-qingdao-env17-d01",
      "id": 353,
      "cuserId": "",
      "uuid": "null",
      "parentId": 1
    },
    "userGroupRoles": [],
    "id": 5616,
    "mobileNationCode": "86",
    "enableEmail": false,
    "email": "mail@example.com",
    "enableShortMessage": false,
    "primaryKey": "221543391942188032",
    "status": "ACTIVE"
  }
],
"success": true,
"pageInfo": {
  "total": 3,
  "totalPage": 1,
  "pageSize": 10,
```

```
      "currentPage": 1
    },
    "pureListData": false,
    "message": "success"
  }
```


1.1.2.3.3. Roles

1.1.2.3.3.1. SetDefaultRole

Sets a default role.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetDefaultRole	The operation that you want to perform. Set the value to SetDefaultRole.
RoleId	Integer	Yes	5	The ID of the role.
LoginName	String	No	testu	The logon name of the user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetDefaultRole
&RoleId=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect":"false",
    "cost":"1000",
    "code":"200",
    "success":"true",
    "pureListData":"false",
    "message":"success"
}
```

1.1.2.3.3.2. ListRoles

Queries the list of available roles of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListRoles	The operation that you want to perform. Set the value to ListRoles.
CurrentPage	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.
IsDefault	Boolean	No	true	Specifies whether the role is a built-in role.

Parameter	Type	Required	Example	Description
RoleType	String	No	ROLETYPE_ASCM	The type of the role. Valid values: • ROLETYPE_RAM: the Resource Access Management (RAM) role • ROLETYPE_ASCM: the custom role
RoleName	String	No	defaultRole.organizationAdmin.name	The name of the role.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
active	Boolean	true	Indicates whether the role is valid.
arId	String	ar-9999999902	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	defaultRole.resourceUser.description	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The organization to which the role belongs.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	2147483647	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: • ROLETYPE_RAM: the RAM role • ROLETYPE_ASCM: the custom role
userCount	Integer	12	The number of users.
message	String	success	The error message.
pageInfo	Struct		The page information.

Parameter	Type	Example	Description
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	20	The number of entries returned per page.
total	Integer	2	The total number of entries returned.
totalPage	Integer	39	The total number of pages.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListRoles
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <roleRange>roleRange.orgAndSubOrgs</roleRange>
    <rAMRole>false</rAMRole>
    <muserId>admin</muserId>
    <arId>ar-9999999902</arId>
    <code>ROLE_RESOURCE_USER</code>
    <description>defaultRole.resourceUser.description</description>
    <active>true</active>
    <roleType>ROLETYPE_ASCM</roleType>
    <default>true</default>
    <userCount>12</userCount>
    <ownerOrganizationId>1</ownerOrganizationId>
    <enable>true</enable>
    <roleName>defaultRole.resourceUser.name</roleName>
    <roleLevel>2147483647</roleLevel>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
</data>
<success>true</success>
<pageInfo>
    <total>2</total>
    <totalPage>39</totalPage>
    <pageSize>20</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": false,
    "cost": 1000,
    "code": 200,
    "data": {
        "roleRange": "roleRange.orgAndSubOrgs",
        "rAMRole": false,
        "muserId": "admin",
        "arId": "ar-9999999902",
        "code": "ROLE_RESOURCE_USER",
        "description": "defaultRole.resourceUser.description",
        "active": true,
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "userCount": 12,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.resourceUser.name",
        "roleLevel": 2147483647,
        "id": 1,
        "organizationVisibility": "organizationVisibility.global"
    },
    "success": true,
    "pageInfo": {
        "total": 2,
        "totalPage": 39,
        "pageSize": 20,
        "currentPage": 1
    },
    "pureListData": false,
    "message": "success"
}
```


1.1.2.3.3.3. ListActiveRoles

Queries the list of roles that can be bound.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListActiveRoles	The operation that you want to perform. Set the value to ListActiveRoles.
IncludeRAMRoles	Boolean	No	false	Specifies whether to include Resource Access Management (RAM) roles.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
active	Boolean	true	Indicates whether the role is valid.
arId	String	ar-9999999902	The ID of the role.
code	String	200 ROLE_RESOURCE_USER	The code of the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	defaultRole.resourceUser.description	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The organization to which the role belongs.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.

Parameter	Type	Example	Description
roleLevel	Integer	2147483647	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
userCount	Integer	12	The number of users.
message	String	success	The error message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	20	The number of entries returned per page.
total	Integer	2	The total number of entries returned.
totalPage	Integer	39	The total number of pages.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.

Parameter	Type	Example	Description
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListActiveRoles
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <roleRange>roleRange.orgAndSubOrgs</roleRange>
    <rAMRole>false</rAMRole>
    <arId>ar-9999999902</arId>
    <code>200 ROLE_RESOURCE_USER</code>
    <description>defaultRole.resourceUser.description</description>
    <active>true</active>
    <roleType>ROLETYPE_ASCM</roleType>
    <default>true</default>
    <userCount>12</userCount>
    <ownerOrganizationId>1</ownerOrganizationId>
    <enable>true</enable>
    <roleName>defaultRole.resourceUser.name</roleName>
    <roleLevel>2147483647</roleLevel>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
</data>
<success>true</success>
<pageInfo>
    <total>2</total>
    <totalPage>39</totalPage>
    <pageSize>20</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": [
        {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": "false",
            "arId": "ar-9999999902",
            "code": "200 ROLE_RESOURCE_USER",
            "description": "defaultRole.resourceUser.description",
            "active": "true",
            "roleType": "ROLETYPE_ASCM",
            "default": "true",
            "userCount": "12",
            "ownerOrganizationId": "1",
            "enable": "true",
            "roleName": "defaultRole.resourceUser.name",
            "roleLevel": "2147483647",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global"
        }
    ],
    "success": "true",
    "pageInfo": {
        "total": "2",
        "totalPage": "39",
        "pageSize": "20",
        "currentPage": "1"
    },
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4. Users

1.1.2.3.4.1. AddUser

Creates a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddUser	The operation that you want to perform. Set the value to AddUser.
CellphoneNum	String	Yes	10000000000	The mobile number of the user.

Parameter	Type	Required	Example	Description
DisplayName	String	Yes	testuser	The display name of the user.
Email	String	Yes	a@a.com	The email address of the user.
LoginName	String	Yes	testu	The logon name of the user.
LoginPolicyId	Integer	Yes	1	The ID of the logon policy.
MobileNationCode	String	Yes	86	The country code.
OrganizationId	Integer	Yes	5	The ID of the organization.
roleIdList	Json	No	{"RoleIdList": ["5", "6", "8"]}	The list of role IDs.
OrganizationUuid	String	No	1223	The UUID of the organization.
TelephoneNum	String	No	00000000	The telephone number.
DingTalkToken	String	No	12345abc	The DingTalk token.
EnableDingTalk	Boolean	No	false	Specifies whether to use DingTalk to send notifications.
EnableShortMessage	Boolean	No	false	Specifies whether to use SMS to send notifications.
EnableEmail	Boolean	No	false	Specifies whether to use emails to send notifications.
MultiCloudStatus	String	No	master	Specifies whether the user is a multi-cloud user. Valid values: master and slave. master indicates a primary-cloud user. slave indicates a secondary-cloud user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID of the user.
ctime	Long	1606675230000	The time when the AccessKey pair was created.
id	Integer	1	The ID of the AccessKey pair.
region	String	cn-qingdao-env17-d01	The region where the AccessKey pair is available.
status	String	ACTIVE	Indicates whether the AccessKey pair is valid. Valid values: active and inactive.
cellphoneNum	String	00000000000	The mobile number of the user.
default	Boolean	false	Indicates whether the role is a preset role.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	test	The display name of the user.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.

Parameter	Type	Example	Description
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginPolicy	Struct		The logon policy.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	111	The ID of the logon policy.
muserId	String	admin	The user who created the logon policy.
name	String	deafult.loginpolicy	The name of the logon policy.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The beginning of the time range for the query.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the Resource Access Management (RAM) user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.

Parameter	Type	Example	Description
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.
userGroupRoles	Array of userGroupRole		The list of roles of the user group.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
userGroups	Array of userGroup		The list of user groups.
augId	String	11213	The ID of the user group.

Parameter	Type	Example	Description
createTimeStamp	Long	1606791494471	The time when the user group was created.
groupName	String	ack-user-old	The name of the user group.
id	Integer	1	The ID of the user group.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.

Parameter	Type	Example	Description
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	1231	The UUID of the organization.
organizationId	Integer	1	The ID of the organization.
resourceSets	Array of resourceSet		The list of resource sets.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	1606791494471	The time when the resource set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
resourceGroupName	String	res_test	The name of the resource set.
rsId	String	12312a	The ID of the resource set.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	1231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.

Parameter	Type	Example	Description
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	1231	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.

Parameter	Type	Example	Description
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
users	Array of user		The list of users.
accountType	Integer	1	The type of the account. This parameter is discarded and is not processed in the code. The default value is used.
active	Boolean	true	Indicates whether the user is valid.
aliyunUser	Boolean	false	Indicates whether the account is an Apsara Stack tenant account.
backendAccountType	String	RamUser	The type of the account. Valid values: • AscmUser: the user who is visible to customers in the Apsara Uni-manager Management Console • AliyunUser: the Apsara Stack tenant account • RamUser: the RAM user
cellphoneNum	String	00000000000	The mobile number of the user.
ctime	Long	1606791494471	The time when the user was created.
default	Boolean	false	Indicates whether the user is a preset user.
defaultRoleId	Integer	1	The ID of the default role.
deleted	Boolean	false	Indicates whether the user is deleted.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.

Parameter	Type	Example	Description
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginTime	Long	1606791494471	The time when the user logged on.
mobileNationCode	String	86	The country code.
mtime	Long	1606791494471	The time when the user was modified.
muserId	String	admin	The one who calls the operation to modify the user.
organizationId	Integer	1	The ID of the organization.
password	String	H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS	The password of the user.
ramUser	Boolean	true	Indicates whether the account is a RAM user.
userLoginCtrlId	Integer	34	The ID of the logon control.
username	String	test	The display name of the user.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the role is valid.
arId	String	1121	The ID of the role.

Parameter	Type	Example	Description
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	defaultRole.resourceUser.description	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	1123	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddUser
&CellphoneNum=10000000000
&DisplayName=testuser
&Email=a@a.com
&LoginName=testu
&LoginPolicyId=1
&MobileNationCode=86
&OrganizationId=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
```

```
<code>200</code>
<cost>5542</cost>
<data>
    <cellphoneNum>13269752565</cellphoneNum>
    <displayName>csblcl</displayName>
    <enableDingTalk>true</enableDingTalk>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_GLOBAL_RESOURCE_AUDITOR</code>
        <active>true</active>
        <description>defaultRole.globalResourceAuditor.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.globalResourceAuditor.name</roleName>
        <id>6</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_PLATSECCONF_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunPlatSecConfAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunPlatSecConfAdmin.name</roleName>
        <id>15</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.resourceSet</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_SET_ADMIN</code>
        <active>true</active>
        <description>defaultRole.resourceSetAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceSetAdmin.name</roleName>
        <id>5</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
```

```
        <code>ROLE_YUNDUN_ORG_SEC_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunOrgSecAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunOrgSecAdmin.name</roleName>
        <id>8</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_GLOBALORG_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunGlobalOrgAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunGlobalOrgAdmin.name</roleName>
        <id>11</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_PLATSEC_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunPlatSecAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunPlatSecAdmin.name</roleName>
        <id>12</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_SECSYSCONF_ADMIN</code>
        <active>true</active>
        <description>defaultRole.yundunSecSysConfAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunSecSysConfAdmin.name</roleName>
        <id>10</id>
```

```
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_SEC_AUDITOR</code>
        <active>true</active>
        <description>defaultRole.yundunSecAuditor.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunSecAuditor.name</roleName>
        <id>9</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.allOrganizations</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_YUNDUN_PLATSEC_AUDITOR</code>
        <active>true</active>
        <description>defaultRole.yundunPlatSecAuditor.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunPlatSecAuditor.name</roleName>
        <id>14</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_ORG_RESOURCE_AUDITOR</code>
        <active>true</active>
        <description>defaultRole.orgResourceAuditor.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
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        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
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    </roles>
    <roles>
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        <rAMRole>false</rAMRole>
        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
```

```
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
        <id>4</id>
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    <roles>
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        <rAMRole>false</rAMRole>
        <code>ROLE_RESOURCE_USER</code>
        <active>true</active>
        <description>defaultRole.resourceUser.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceUser.name</roleName>
        <id>2</id>
        <roleLevel>2147483647</roleLevel>
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    </roles>
    <roles>
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        <rAMRole>false</rAMRole>
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        <active>true</active>
        <description>defaultRole.yundunGlobalOrgSecAuditor.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.yundunGlobalOrgSecAuditor.name</roleName>
        <id>13</id>
        <roleLevel>2147483647</roleLevel>
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        <name>defaultLoginPolicy.name</name>
```

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        <muserId/>
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        <active>true</active>
        <description>defaultRole.resourceUser.description</description>
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        <default>true</default>
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        <enable>true</enable>
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        <id>2</id>
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        <cuserId/>
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    <userRoles>
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        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
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        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
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        <muserId/>
        <rAMRole>false</rAMRole>
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        <description>defaultRole.resourceSetAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
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```

```
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        <active>true</active>
        <description>defaultRole.globalResourceAuditor.description</description>
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        <enable>true</enable>
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        <roleType>ROLETYPE_ASCM</roleType>
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        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
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        <description>defaultRole.yundunSecAuditor.description</description>
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```

```
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        <description>defaultRole.yundunSecSysConfAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
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        <description>defaultRole.yundunPlatSecAdmin.description</description>
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```

```
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        <description>defaultRole.yundunGlobalOrgSecAuditor.description</description>
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        <muserId/>
        <rAMRole>false</rAMRole>
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        <active>true</active>
```

```
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        <enable>true</enable>
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    <email>wb-lcl706911@alibaba-inc.com</email>
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    <primaryKey>269837392450677029</primaryKey>
    <status>ACTIVE</status>
</data>
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<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

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  "cost": 5542,
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        "active": true,
        "description": "defaultRole.globalResourceAuditor.description",
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.globalResourceAuditor.name",
        "id": 6,
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        "organizationVisibility": "organizationVisibility.global"
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      {
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      {
        "roleRange": "roleRange.orgAndSubOrgs",
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```

```
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```

```
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      "description": "defaultRole.organizationAdmin.description",
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```

```
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    {
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      "description": "defaultRole.yundunGlobalOrgSecAuditor.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.yundunGlobalOrgSecAuditor.name",
      "id": 13,
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      "organizationVisibility": "organizationVisibility.global"
    }
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  "loginPolicy": {
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        "protocol": "IPV4",
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        "loginPolicyId": 1
      }
    ],
    "muserId": "",
    "default": true,
    "ownerOrganizationId": 1,
    "timeRanges": [
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        "loginPolicyId": 1,
        "startTime": "00:00",
        "endTime": "24:00"
      }
```

```
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      "enable": true,
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```

```
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      "description": "defaultRole.globalResourceAuditor.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.globalResourceAuditor.name",
      "id": 6,
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      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    {
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      "enable": true,
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      "organizationVisibility": "organizationVisibility.global"
    },
    {
      "roleRange": "roleRange.allOrganizations",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_YUNDUN_SEC_AUDITOR",
      "active": true,
      "description": "defaultRole.yundunSecAuditor.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.yundunSecAuditor.name",
```

```
      "id": 9,
      "roleLevel": 2147483647,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    {
      "roleRange": "roleRange.allOrganizations",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_YUNDUN_SECSYSCONF_ADMIN",
      "active": true,
      "description": "defaultRole.yundunSecSysConfAdmin.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.yundunSecSysConfAdmin.name",
      "id": 10,
      "roleLevel": 2147483647,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    {
      "roleRange": "roleRange.allOrganizations",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_YUNDUN_GLOBALORG_ADMIN",
      "active": true,
      "description": "defaultRole.yundunGlobalOrgAdmin.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.yundunGlobalOrgAdmin.name",
      "id": 11,
      "roleLevel": 2147483647,
      "cuserId": "",
      "organizationVisibility": "organizationVisibility.global"
    },
    {
      "roleRange": "roleRange.allOrganizations",
      "muserId": "",
      "rAMRole": false,
      "code": "ROLE_YUNDUN_PLATSEC_ADMIN",
      "active": true,
      "description": "defaultRole.yundunPlatSecAdmin.description",
      "roleType": "ROLETYPE_ASCM",
      "default": true,
      "ownerOrganizationId": 1,
      "enable": true,
      "roleName": "defaultRole.yundunPlatSecAdmin.name",
      "id": 12,
      "roleLevel": 2147483647,
      "cuserId": "",
```

```
    "organizationVisibility": "organizationVisibility.global"
  },
  {
    "roleRange": "roleRange.allOrganizations",
    "muserId": "",
    "rAMRole": false,
    "code": "ROLE_YUNDUN_GLOBALORGSEC_AUDITOR",
    "active": true,
    "description": "defaultRole.yundunGlobalOrgSecAuditor.description",
    "roleType": "ROLETYPE_ASCM",
    "default": true,
    "ownerOrganizationId": 1,
    "enable": true,
    "roleName": "defaultRole.yundunGlobalOrgSecAuditor.name",
    "id": 13,
    "roleLevel": 2147483647,
    "cuserId": "",
    "organizationVisibility": "organizationVisibility.global"
  },
  {
    "roleRange": "roleRange.allOrganizations",
    "muserId": "",
    "rAMRole": false,
    "code": "ROLE_YUNDUN_PLATSEC_AUDITOR",
    "active": true,
    "description": "defaultRole.yundunPlatSecAuditor.description",
    "roleType": "ROLETYPE_ASCM",
    "default": true,
    "ownerOrganizationId": 1,
    "enable": true,
    "roleName": "defaultRole.yundunPlatSecAuditor.name",
    "id": 14,
    "roleLevel": 2147483647,
    "cuserId": "",
    "organizationVisibility": "organizationVisibility.global"
  },
  {
    "roleRange": "roleRange.allOrganizations",
    "muserId": "",
    "rAMRole": false,
    "code": "ROLE_YUNDUN_PLATSECCONF_ADMIN",
    "active": true,
    "description": "defaultRole.yundunPlatSecConfAdmin.description",
    "roleType": "ROLETYPE_ASCM",
    "default": true,
    "ownerOrganizationId": 1,
    "enable": true,
    "roleName": "defaultRole.yundunPlatSecConfAdmin.name",
    "id": 15,
    "roleLevel": 2147483647,
    "cuserId": "",
    "organizationVisibility": "organizationVisibility.global"
  },
  {
```

```
        "roleRange": "roleRange.orgAndSubOrgs",
        "muserId": "",
        "rAMRole": false,
        "code": "ROLE_ORG_RESOURCE_AUDITOR",
        "active": true,
        "description": "defaultRole.orgResourceAuditor.description",
        "roleType": "ROLETYPE_ASCM",
        "default": true,
        "ownerOrganizationId": 1,
        "enable": true,
        "roleName": "defaultRole.orgResourceAuditor.name",
        "id": 16,
        "roleLevel": 2147483647,
        "cuserId": "",
        "organizationVisibility": "organizationVisibility.global"
      }
    ],
    "accessKeys": [
      {
        "ctime": 1592439877000,
        "id": 664,
        "region": "cn-qingdao-env17-d01",
        "cuserId": "admin",
        "accesskeyId": "mX7fKY519ozEYUSB",
        "status": "ACTIVE"
      }
    ],
    "default": false,
    "deleted": false,
    "loginName": "csbuser",
    "organization": {
      "muserId": "",
      "internal": false,
      "supportRegionList": [
        "cn-qingdao-env17-d01"
      ],
      "level": "0.1",
      "name": "dataworks_test",
      "alias": "dataworks_test",
      "supportRegions": "cn-qingdao-env17-d01",
      "id": 41,
      "cuserId": "",
      "uuid": "41",
      "parentId": 1
    },
    "userGroupRoles": [],
    "id": 5671,
    "mobileNationCode": "86",
    "enableEmail": true,
    "email": "wb-lcl706911@alibaba-inc.com",
    "enableShortMessage": false,
    "primaryKey": "269837392450677029",
    "status": "ACTIVE"
  },
  "success": true
```

```
  "success": true,
  "pureListData": false,
  "message": "success"
}
```

1.1.2.3.4.2. AddRoleToUser

Binds a role to a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddRoleToUser	The operation that you want to perform. Set the value to AddRoleToUser.
LoginName	String	Yes	test	The logon name of the user.
RoleId	Integer	Yes	3	The ID of the role.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddRoleToUser
&LoginName=test
&RoleId=3
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.4.3. ResetPasswordByLoginName

Resets the password of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetPasswordByLoginName	The operation that you want to perform. Set the value to ResetPasswordByLoginName.
LoginName	String	Yes	testu	The logon name of the user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.

Parameter	Type	Example	Description
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	sucess	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ResetPasswordByLoginName
&LoginName=testu
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>sucess</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "sucess"
}
```

1.1.2.3.4.4. GetLoginPolicyByLoginName

Queries the logon policy that is bound to a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetLoginPolicyByLoginName	The operation that you want to perform. Set the value to GetLoginPolicyByLoginName.
LoginName	String	Yes	testu	The logon name of the user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
cuserId	String	admin	The creator of the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.

Parameter	Type	Example	Description
lpId	String	111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	defaultLoginPolicy.name	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The beginning of the time range for query.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.

Parameter	Type	Example	Description
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetLoginPolicyByLoginName
&LoginName=testu
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <ipRanges>
        <ipRange>0.0.0.0/0</ipRange>
        <protocol>IPV4</protocol>
        <loginPolicyId>1</loginPolicyId>
    </ipRanges>
    <muserId>admin</muserId>
    <default>true</default>
    <ownerOrganizationId>1</ownerOrganizationId>
    <timeRanges>
        <startTime>00:00</startTime>
        <loginPolicyId>1</loginPolicyId>
        <endTime>24:00</endTime>
    </timeRanges>
    <enable>true</enable>
    <name>defaultLoginPolicy.name</name>
    <rule>ALLOW</rule>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
    <lpId>111</lpId>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "ipRanges": [
            {
                "ipRange": "0.0.0.0/0",
                "protocol": "IPV4",
                "loginPolicyId": "1"
            }
        ],
        "muserId": "admin",
        "default": "true",
        "ownerOrganizationId": "1",
        "timeRanges": [
            {
                "startTime": "00:00",
                "loginPolicyId": "1",
                "endTime": "24:00"
            }
        ],
        "enable": "true",
        "name": "defaultLoginPolicy.name",
        "rule": "ALLOW",
        "id": "1",
        "organizationVisibility": "organizationVisibility.global",
        "lpId": "111",
        "cuserId": "admin"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4.5. UpdatePassword

Modifies a password.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdatePassword	The operation that you want to perform. Set the value to UpdatePassword.

Parameter	Type	Required	Example	Description
NewPassword	String	Yes	QAZ2wsx	The new password. The password must comply with the password policy specified by the administrator in the Apsara Uni-manager Operations Console.
OldPassword	String	Yes	#EDC4rfv	The current password.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UpdatePassword
&NewPassword=QAZ2wsx
&OldPassword=#EDC4rfv
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.4.6. RemoveUserByLoginName

Deletes a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveUserByLoginName	The operation that you want to perform. Set the value to RemoveUserByLoginName.
LoginName	String	Yes	testu	The logon name of the user.
MultiCloudStatus	String	No	master	Specifies whether the user is a multi-cloud user. Valid values: master and slave. master indicates a primary-cloud user. slave indicates a secondary-cloud user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.

Parameter	Type	Example	Description
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveUserByLoginName
&LoginName=testu
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.4.7. GetUserInfo

Queries the information of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetUserInfo	The operation that you want to perform. Set the value to GetUserInfo.
LoginName	String	No	testu	The logon name of the user.
UserAccessKeyId	String	No	test	The AccessKey ID of the user.
Pk	String	No	279319888999990000	The primary key of the user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID.
accesskeySecret	String	JGdgSN2pVYahtrd7$123	The AccessKey secret.
ctime	Long	1606675230000	The time when the AccessKey pair was created.
cuserId	String	1	The user who created the AccessKey pair.
id	Integer	1	The ID of the AccessKey pair.
region	String	cn-qingdao-env17-d01	The region where the AccessKey pair is available.

Parameter	Type	Example	Description
status	String	ACTIVE	Indicates whether the AccessKey pair is valid. Valid values: active and inactive.
cellphoneNum	String	00000000000	The mobile number of the user.
default	Boolean	false	Indicates whether the role is a preset role.
defaultRole	Struct		The default role.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.

Parameter	Type	Example	Description
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a Resource Access Management (RAM) role.
roleLevel	Integer	11123	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	test	The display name of the user.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether notifications are sent by DingTalk.
enableEmail	Boolean	false	Indicates whether notifications are sent by email.

Parameter	Type	Example	Description
enableShortMessage	Boolean	false	Indicates whether notifications are sent by SMS.
id	Integer	1	The ID of the user.
lastLoginTime	Long	1132111	The most recent logon time.
loginName	String	test	The logon name of the user.
loginPolicy	Struct		The logon policy.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	default.loginpolicy	The name of the logon policy.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The start of the time range for the query.
mobileNationCode	String	86	The country code.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1622311	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	15123222	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The modifier.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	123331	The universally unique identifier (UUID) of the organization.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the RAM user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.

Parameter	Type	Example	Description
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.
userGroupRoles	Array of userGroupRole		The list of roles of the user group.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
userGroups	Array of userGroup		The list of user groups.
augId	String	11213	The ID of the user group.
createTimeStamp	Long	1606791494471	The time when the user group was created.

Parameter	Type	Example	Description
groupName	String	group-test	The name of the user group.
id	Integer	1	The ID of the user group.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.

Parameter	Type	Example	Description
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	1231	The UUID of the organization.
organizationId	Integer	1	The ID of the organization.
resourceSets	Array of resourceSet		The list of resource sets.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	1606791494471	The time when the storage set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
resourceGroupName	String	res_test	The name of the resource set.
rsId	String	123121a	The ID of the resource set.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	1231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.

Parameter	Type	Example	Description
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	1231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.

Parameter	Type	Example	Description
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
users	Array of user		The list of users.
accountType	Integer	1	The type of the account. This parameter is discarded and is not processed in the code. The default value is used.
active	Boolean	true	Indicates whether the user is valid.
aliyunUser	Boolean	false	Indicates whether the account is an Apsara Stack tenant account.
backendAccountType	String	RamUser	The type of the account. Valid values: • AscmUser: the user who is visible to customers in the Apsara Uni-manager Management Console • AliyunUser: the Apsara Stack tenant account • RamUser: the RAM user
cellphoneNum	String	00000000000	The mobile number of the user.
ctime	Long	1606791494471	The time when the user was created.
default	Boolean	false	Indicates whether the role is a preset role.
defaultRoleId	Integer	1	The ID of the default role.
deleted	Boolean	false	Indicates whether the user is deleted.
email	String	test@163.com	The email address of the user.

Parameter	Type	Example	Description
enableDingTalk	Boolean	false	Indicates whether notifications are sent by DingTalk.
enableEmail	Boolean	false	Indicates whether notifications are sent by email.
enableShortMessage	Boolean	false	Indicates whether notifications are sent by SMS.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginTime	Long	1606791494471	The time when the user logged on.
mobileNationCode	String	86	The country code.
mtime	Long	1606791494471	The time when the user was modified.
muserId	String	admin	The one who calls the operation to modify the user.
organizationId	Integer	1	The ID of the organization.
password	String	H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS	The password of the cluster user.
ramUser	Boolean	true	Indicates whether the account is a RAM user.
userLoginCtrlId	Integer	34	The ID of the logon control.
username	String	test	The display name of the user.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the role is valid.

Parameter	Type	Example	Description
arId	String	1121	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	defaultRole.resourceUser.description	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	1123	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role.

Parameter	Type	Example	Description
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other fields are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the request is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetUserInfo
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <cellphoneNum>00000000000</cellphoneNum>
    <defaultRole>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11123</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
```

```
        <cuserId>admin</cuserId>
    </defaultRole>
    <enableDingTalk>false</enableDingTalk>
    <displayName>test</displayName>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11321</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </roles>
    <loginPolicy>
        <ipRanges>
            <ipRange>0.0.0.0/0</ipRange>
            <protocol>IPV4</protocol>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId>admin</muserId>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <startTime>00:00</startTime>
            <loginPolicyId>1</loginPolicyId>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>default.loginpolicy</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <lpId>111</lpId>
        <cuserId>admin</cuserId>
    </loginPolicy>
    <parentPk>1689406703302188</parentPk>
    <lastLoginTime>1132111</lastLoginTime>
    <userGroups>
        <organizationId>1</organizationId>
        <createTimeStamp>1606791494471</createTimeStamp>
        <groupName>group-test</groupName>
        <augId>11213</augId>
        <id>1</id>
    </userGroups>
    <userGroups>
        <resourceSets>
```

```
        <resourceSets>
            <organizationID>1</organizationID>
            <creator>admin</creator>
            <resourceGroupName>res_test</resourceGroupName>
            <gmtCreated>1606791494471</gmtCreated>
            <rsId>123121a</rsId>
            <id>1</id>
        </resourceSets>
        <users>
            <muserId>admin</muserId>
            <backendAccountType>RamUser</backendAccountType>
            <enableDingTalk>false</enableDingTalk>
            <mtime>1606791494471</mtime>
            <organizationId>1</organizationId>
            <password>H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS</password>
            <default>false</default>
            <loginTime>1606791494471</loginTime>
            <userLoginCtrlId>34</userLoginCtrlId>
            <loginName>test</loginName>
            <ctime>1606791494471</ctime>
            <id>1</id>
            <enableShortMessage>false</enableShortMessage>
            <email>test@163.com</email>
            <defaultRoleId>1</defaultRoleId>
            <cellphoneNum>00000000000</cellphoneNum>
            <aliyunUser>false</aliyunUser>
            <accountType>1</accountType>
            <active>true</active>
            <deleted>false</deleted>
            <mobileNationCode>86</mobileNationCode>
            <ramUser>true</ramUser>
            <enableEmail>false</enableEmail>
            <username>test</username>
        </users>
        <roles>
            <roleRange>roleRange.orgAndSubOrgs</roleRange>
            <rAMRole>false</rAMRole>
            <muserId>admin</muserId>
            <arId>1231</arId>
            <code>ROLE_RESOURCE_USER</code>
            <description>role_test</description>
            <active>true</active>
            <roleType>ROLETYPE_ASCM</roleType>
            <default>true</default>
            <ownerOrganizationId>1</ownerOrganizationId>
            <enable>true</enable>
            <roleName>role_test</roleName>
            <roleLevel>1231</roleLevel>
            <id>1</id>
            <organizationVisibility>organizationVisibility.global</organizationVisibility>
            <cuserId>admin</cuserId>
        </roles>
    </userGroups>
    <userGroups>
        <organization>
```

```
            <muserId>admin</muserId>
            <internal>false</internal>
            <level>0.1</level>
            <supportRegions>cn-qingdao-env17-d01</supportRegions>
            <mtime>1606791494471</mtime>
            <uuid>1231</uuid>
            <parentId>0</parentId>
            <multiCloudStatus>master</multiCloudStatus>
            <supportRegionList>["cn-qingdao-env17-d01"]</supportRegionList>
            <name>test</name>
            <ctime>1606791494471</ctime>
            <alias>test</alias>
            <id>1</id>
            <cuserId>admin</cuserId>
        </organization>
    </userGroups>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>1121</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>role_test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceUser.name</roleName>
        <roleLevel>1123</roleLevel>
        <id>1</id>
        <organizationVisibility>defaultRole.resourceUser.description</organizationVisibilit
y>
        <cuserId>admin</cuserId>
    </userRoles>
    <default>false</default>
    <accessKeys>
        <ctime>1606675230000</ctime>
        <id>1</id>
        <region>cn-qingdao-env17-d01</region>
        <accesskeySecret>JGdgSN2pVYahtrd7$123</accesskeySecret>
        <cuserId>1</cuserId>
        <status>ACTIVE</status>
        <accesskeyId>JGdgSN2pVYahtrd7</accesskeyId>
    </accessKeys>
    <deleted>false</deleted>
    <loginName>test</loginName>
    <organization>
        <muserId>admin</muserId>
        <internal>false</internal>
        <level>0.1</level>
        <supportRegions>cn-qingdao-env17-d01</supportRegions>
        <mtime>15123222</mtime>
        <uuid>123331</uuid>
```

```
        <parentId>0</parentId>
        <multiCloudStatus>master</multiCloudStatus>
        <supportRegionList>["cn-qingdao-env17-d01"]</supportRegionList>
        <name>test</name>
        <ctime>1622311</ctime>
        <alias>test</alias>
        <id>1</id>
        <cuserId>admin</cuserId>
    </organization>
    <userGroupRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>role_test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11321</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </userGroupRoles>
    <mobileNationCode>86</mobileNationCode>
    <id>1</id>
    <enableEmail>false</enableEmail>
    <enableShortMessage>false</enableShortMessage>
    <email>test@163.com</email>
    <status>ACTIVE</status>
    <primaryKey>212530506704030466</primaryKey>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "cellphoneNum": "00000000000",
        "defaultRole": {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": "false",
            "muserId": "admin",
            "arId": "111",
            "code": "ROLE_RESOURCE_USER",
            "description": "test"
```

```
            "description": "test",
            "active": "true",
            "roleType": "ROLETYPE_ASCM",
            "default": "true",
            "ownerOrganizationId": "1",
            "enable": "true",
            "roleName": "role_test",
            "roleLevel": "11123",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global",
            "cuserId": "admin"
        },
        "enableDingTalk": "false",
        "displayName": "test",
        "roles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "111",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11321",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
        ],
        "loginPolicy": {
            "ipRanges": [
                {
                    "ipRange": "0.0.0.0/0",
                    "protocol": "IPV4",
                    "loginPolicyId": "1"
                }
            ],
            "muserId": "admin",
            "default": "true",
            "ownerOrganizationId": "1",
            "timeRanges": [
                {
                    "startTime": "00:00",
                    "loginPolicyId": "1",
                    "endTime": "24:00"
                }
            ],
            "enable": "true",
            "name": "default.loginpolicy",
            "rule": "ALLOW",
```

```
            "id": "1",
            "organizationVisibility": "organizationVisibility.global",
            "lpId": "111",
            "cuserId": "admin"
        },
        "parentPk": "1689406703302188",
        "lastLoginTime": "1132111",
        "userGroups": [
            {
                "organizationId": "1",
                "createTimeStamp": "1606791494471",
                "groupName": "group-test",
                "augId": "11213",
                "id": "1"
            },
            {
                "resourceSets": [
                    {
                        "organizationID": "1",
                        "creator": "admin",
                        "resourceGroupName": "res_test",
                        "gmtCreated": "1606791494471",
                        "rsId": "123121a",
                        "id": "1"
                    }
                ],
                "users": [
                    {
                        "muserId": "admin",
                        "backendAccountType": "RamUser",
                        "enableDingTalk": "false",
                        "mtime": "1606791494471",
                        "organizationId": "1",
                        "password": "H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS"
,
                        "default": "false",
                        "loginTime": "1606791494471",
                        "userLoginCtrlId": "34",
                        "loginName": "test",
                        "ctime": "1606791494471",
                        "id": "1",
                        "enableShortMessage": "false",
                        "email": "test@163.com",
                        "defaultRoleId": "1",
                        "cellphoneNum": "00000000000",
                        "aliyunUser": "false",
                        "accountType": "1",
                        "active": "true",
                        "deleted": "false",
                        "mobileNationCode": "86",
                        "ramUser": "true",
                        "enableEmail": "false",
                        "username": "test"
                    }
```

```
                ],
                "roles": [
                    {
                        "roleRange": "roleRange.orgAndSubOrgs",
                        "rAMRole": "false",
                        "muserId": "admin",
                        "arId": "1231",
                        "code": "ROLE_RESOURCE_USER",
                        "description": "role_test",
                        "active": "true",
                        "roleType": "ROLETYPE_ASCM",
                        "default": "true",
                        "ownerOrganizationId": "1",
                        "enable": "true",
                        "roleName": "role_test",
                        "roleLevel": "1231",
                        "id": "1",
                        "organizationVisibility": "organizationVisibility.global",
                        "cuserId": "admin"
                    }
                ]
            },
            {
                "organization": {
                    "muserId": "admin",
                    "internal": "false",
                    "level": "0.1",
                    "supportRegions": "cn-qingdao-env17-d01",
                    "mtime": "1606791494471",
                    "uuid": "1231",
                    "parentId": "0",
                    "multiCloudStatus": "master",
                    "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
                    "name": "test",
                    "ctime": "1606791494471",
                    "alias": "test",
                    "id": "1",
                    "cuserId": "admin"
                }
            }
        ],
        "userRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "1121",
                "code": "ROLE_RESOURCE_USER",
                "description": "role_test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
```

```
                "roleName": "defaultRole.resourceUser.name",
                "roleLevel": "1123",
                "id": "1",
                "organizationVisibility": "defaultRole.resourceUser.description",
                "cuserId": "admin"
            }
        ],
        "default": "false",
        "accessKeys": [
            {
                "ctime": "1606675230000",
                "id": "1",
                "region": "cn-qingdao-env17-d01",
                "accesskeySecret": "JGdgSN2pVYahtrd7$123",
                "cuserId": "1",
                "status": "ACTIVE",
                "accesskeyId": "JGdgSN2pVYahtrd7"
            }
        ],
        "deleted": "false",
        "loginName": "test",
        "organization": {
            "muserId": "admin",
            "internal": "false",
            "level": "0.1",
            "supportRegions": "cn-qingdao-env17-d01",
            "mtime": "15123222",
            "uuid": "123331",
            "parentId": "0",
            "multiCloudStatus": "master",
            "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
            "name": "test",
            "ctime": "1622311",
            "alias": "test",
            "id": "1",
            "cuserId": "admin"
        },
        "userGroupRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "111",
                "code": "ROLE_RESOURCE_USER",
                "description": "role_test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11321",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
```

```
                "cuserId": "admin"
            }
        ],
        "mobileNationCode": "86",
        "id": "1",
        "enableEmail": "false",
        "enableShortMessage": "false",
        "email": "test@163.com",
        "status": "ACTIVE",
        "primaryKey": "212530506704030466"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4.8. ListUsers

Queries the list of available users.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListUsers	The operation that you want to perform. Set the value to ListUsers.
LoginName	String	No	test	The logon name of the user.
RoleId	Integer	No	2	The ID of the role.
LoginPolicyId	Integer	No	1	The ID of the logon policy.
OrganizationId	Integer	No	3	The ID of the organization.
CurrentPage	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	188	The amount of time taken to perform the operation. Unit: ms.
data	Array of dataItem		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID.
ctime	Long	1606675230000	The time when the AccessKey pair was created.
cuserId	String	5013	The user who created the AccessKey pair.
id	Integer	1	The AccessKey ID.
region	String	cn-**-d01	The region where the AccessKey pair is available.
status	String	ACTIVE	Indicates whether the AccessKey pair is valid. Valid values: active and inactive.
cellphoneNum	String	188*****188	The mobile number of the user.
default	Boolean	false	Indicates whether the role is a preset role.
defaultRole	Struct		The default role.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.

Parameter	Type	Example	Description
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a Resource Access Management (RAM) role.
roleLevel	Integer	1	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	user_test	The display name of the user.
email	String	xxx@alibaba-inc.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
lastLoginTime	Long	1606675230000	The most recent logon time.
loginName	String	user_test	The logon name of the user.
loginPolicy	Struct		The logon policy.

Parameter	Type	Example	Description
cuserId	String	admin	The user who created the logon policy.
default	Boolean	false	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	policy_test	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.

Parameter	Type	Example	Description
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00.00	The start of the time range for the query.
mobileNationCode	String	86	The country code.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1607512443989	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.

Parameter	Type	Example	Description
name	String	test	The name of the organization.
parentId	Integer	1	The ID of the parent organization.
supportRegionList	List	cn-***-d01	The list of regions.
supportRegions	String	["cn-***-d01"]	The list of regions.
uuid	String	123456	The universally unique identifier (UUID) of the organization.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the RAM user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	111	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.
userGroupRoles	Array of userGroupRole		The list of roles of the user group.

Parameter	Type	Example	Description
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	111	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
userGroups	Array of userGroup		The list of user groups.
augId	String	1111	The ID of the user group.
createTimeStamp	Long	1606791494471	The time when the user group was created.
groupName	String	ack-user-old	The name of the user group.
id	Integer	1	The ID of the user group.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
internal	Boolean	true	Indicates whether the organization is a preset organization.
level	String	123	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	1	The ID of the parent organization.
supportRegionList	List	cn-**-d01	The list of regions.
supportRegions	String	["cn-**-d01"]	The list of regions.
uuid	String	123456	The UUID of the organization.
organizationId	Integer	1	The ID of the organization.
resourceSets	Array of resourceSet		The list of resource sets.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	1606791494471	The time when the resource set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
resourceGroupName	String	resource_test	The name of the resource set.
rsId	String	123456	The ID of the resource set.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	123456	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.

Parameter	Type	Example	Description
roleLevel	Integer	1231	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
users	Array of user		The list of users.
accountType	Integer	1	The type of the account. This parameter is discarded and is not processed in the code. The default value is used.
active	Boolean	true	Indicates whether the user is valid.
aliyunUser	Boolean	false	Indicates whether the account is an Apsara Stack tenant account.
backendAccountType	String	RamUser	The type of the account. Valid values: • AscmUser: the user who is visible to customers in the Apsara Uni-manager Management Console • AliyunUser: the Apsara Stack tenant account • RamUser: the RAM user
cellphoneNum	String	00000000000	The mobile number of the user.

Parameter	Type	Example	Description
ctime	Long	1606791494471	The time when the user was created.
default	Boolean	true	Indicates whether the user is a preset user.
defaultRoleId	Integer	1	The ID of the default role.
deleted	Boolean	false	Indicates whether the user is deleted.
email	String	xxx@alibaba-inc.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginTime	Long	1606791494471	The time when the user logged on.
mobileNationCode	String	86	The country code.
mtime	Long	1606791494471	The time when the user was modified.
muserId	String	admin	The one who calls the operation to modify the user.
organizationId	Integer	1	The ID of the organization.
password	String	H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS	The password of the user.

Parameter	Type	Example	Description
ramUser	Boolean	true	Indicates whether the account is a RAM user.
userLoginCtrlId	Integer	34	The ID of the logon control.
username	String	test	The display name of the user.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the role is valid.
arId	String	1111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	defaultRole.resourceUser.description	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	123	The level of the role.
roleName	String	defaultRole.resourceUser.name	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
message	String	success	The error message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	20	The number of entries returned per page.
total	Integer	39	The total number of entries returned.
totalPage	Integer	2	The total number of pages returned.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.

Parameter	Type	Example	Description
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListUsers
&<Common request parameters>
```

Sample success response

`XML` format

```
<redirect>false</redirect>
<cost>188</cost>
<code>200</code>
<data>
    <cellphoneNum>188*****188</cellphoneNum>
    <enableDingTalk>false</enableDingTalk>
    <displayName>user_test</displayName>
    <parentPk>1689406703302188</parentPk>
    <lastLoginTime>1606675230000</lastLoginTime>
    <default>false</default>
    <deleted>false</deleted>
    <loginName>user_test</loginName>
    <mobileNationCode>86</mobileNationCode>
    <id>1</id>
    <enableEmail>false</enableEmail>
    <enableShortMessage>false</enableShortMessage>
    <email>xxx@alibaba-inc.com</email>
    <status>ACTIVE</status>
    <primaryKey>212530506704030466</primaryKey>
</data>
<data>
    <userGroupRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
```

```
        <roleLevel>111</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </userGroupRoles>
    <userGroups>
        <organizationId>1</organizationId>
        <createTimeStamp>1606791494471</createTimeStamp>
        <groupName>ack-user-old</groupName>
        <augId>1111</augId>
        <id>1</id>
    </userGroups>
    <userGroups>
        <resourceSets>
            <organizationID>1</organizationID>
            <creator>admin</creator>
            <resourceGroupName>resource_test</resourceGroupName>
            <gmtCreated>1606791494471</gmtCreated>
            <rsId>123456</rsId>
            <id>1</id>
        </resourceSets>
        <users>
            <muserId>admin</muserId>
            <backendAccountType>RamUser</backendAccountType>
            <enableDingTalk>false</enableDingTalk>
            <mtime>1606791494471</mtime>
            <organizationId>1</organizationId>
            <password>H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS</password>
            <default>true</default>
            <loginTime>1606791494471</loginTime>
            <userLoginCtrlId>34</userLoginCtrlId>
            <loginName>test</loginName>
            <ctime>1606791494471</ctime>
            <id>1</id>
            <enableShortMessage>false</enableShortMessage>
            <email>xxx@alibaba-inc.com</email>
            <defaultRoleId>1</defaultRoleId>
            <cellphoneNum>00000000000</cellphoneNum>
            <aliyunUser>false</aliyunUser>
            <accountType>1</accountType>
            <active>true</active>
            <deleted>false</deleted>
            <mobileNationCode>86</mobileNationCode>
            <ramUser>true</ramUser>
            <enableEmail>false</enableEmail>
            <username>test</username>
        </users>
        <roles>
            <roleRange>roleRange.orgAndSubOrgs</roleRange>
            <rAMRole>false</rAMRole>
            <muserId>admin</muserId>
            <arId>123456</arId>
            <code>ROLE_RESOURCE_USER</code>
            <description>test</description>
```

```
            <active>true</active>
            <roleType>ROLETYPE_ASCM</roleType>
            <default>true</default>
            <ownerOrganizationId>1</ownerOrganizationId>
            <enable>true</enable>
            <roleName>defaultRole.resourceUser.name</roleName>
            <roleLevel>1231</roleLevel>
            <id>1</id>
            <organizationVisibility>organizationVisibility.global</organizationVisibility>
            <cuserId>admin</cuserId>
        </roles>
    </userGroups>
    <userGroups>
        <organization>
            <muserId>admin</muserId>
            <internal>true</internal>
            <level>123</level>
            <supportRegions>["cn-**-d01"]</supportRegions>
            <mtime>1606791494471</mtime>
            <uuid>123456</uuid>
            <parentId>1</parentId>
            <multiCloudStatus>master</multiCloudStatus>
            <supportRegionList>cn-**-d01</supportRegionList>
            <name>test</name>
            <ctime>1606791494471</ctime>
            <alias>test</alias>
            <id>1</id>
            <cuserId>admin</cuserId>
        </organization>
    </userGroups>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>1111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.resourceUser.name</roleName>
        <roleLevel>123</roleLevel>
        <id>1</id>
        <organizationVisibility>defaultRole.resourceUser.description</organizationVisibilit
y>
        <cuserId>admin</cuserId>
    </userRoles>
    <accessKeys>
        <ctime>1606675230000</ctime>
        <id>1</id>
        <region>cn-**-d01</region>
        <cuserId>5013</cuserId>
```

```
        <status>ACTIVE</status>
        <accesskeyId>JGdgSN2pVYahtrd7</accesskeyId>
    </accessKeys>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>111</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </roles>
</data>
<data>
    <defaultRole>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>1</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </defaultRole>
    <loginPolicy>
        <ipRanges>
            <ipRange>0.0.0.0</ipRange>
            <protocol>IPV4</protocol>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId>admin</muserId>
        <default>false</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <startTime>00.00</startTime>
            <loginPolicyId>1</loginPolicyId>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
```

```
        <enable>true</enable>
        <name>policy_test</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <lpId>111</lpId>
        <cuserId>admin</cuserId>
    </loginPolicy>
    <organization>
        <muserId>admin</muserId>
        <internal>true</internal>
        <level>0.1</level>
        <supportRegions>["cn-***-d01"]</supportRegions>
        <mtime>1606791494471</mtime>
        <uuid>123456</uuid>
        <parentId>1</parentId>
        <multiCloudStatus>master</multiCloudStatus>
        <supportRegionList>cn-***-d01</supportRegionList>
        <name>test</name>
        <ctime>1607512443989</ctime>
        <alias>test</alias>
        <id>1</id>
        <cuserId>admin</cuserId>
    </organization>
</data>
<success>true</success>
<pageInfo>
    <total>39</total>
    <totalPage>2</totalPage>
    <pageSize>20</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "188",
    "code": "200",
    "data": [
        {
            "cellphoneNum": "188*****188",
            "enableDingTalk": "false",
            "displayName": "user_test",
            "parentPk": "1689406703302188",
            "lastLoginTime": "1606675230000",
            "default": "false",
            "deleted": "false",
            "loginName": "user_test",
            "mobileNationCode": "86",
            "id": "1",
            "enableEmail": "false",
```

```
            "enableShortMessage": "false",
            "email": "xxx@alibaba-inc.com",
            "status": "ACTIVE",
            "primaryKey": "212530506704030466"
        },
        {
            "userGroupRoles": [
                {
                    "roleRange": "roleRange.orgAndSubOrgs",
                    "rAMRole": "false",
                    "muserId": "admin",
                    "arId": "111",
                    "code": "ROLE_RESOURCE_USER",
                    "description": "test",
                    "active": "true",
                    "roleType": "ROLETYPE_ASCM",
                    "default": "true",
                    "ownerOrganizationId": "1",
                    "enable": "true",
                    "roleName": "role_test",
                    "roleLevel": "111",
                    "id": "1",
                    "organizationVisibility": "organizationVisibility.global",
                    "cuserId": "admin"
                }
            ],
            "userGroups": [
                {
                    "organizationId": "1",
                    "createTimeStamp": "1606791494471",
                    "groupName": "ack-user-old",
                    "augId": "1111",
                    "id": "1"
                },
                {
                    "resourceSets": [
                        {
                            "organizationID": "1",
                            "creator": "admin",
                            "resourceGroupName": "resource_test",
                            "gmtCreated": "1606791494471",
                            "rsId": "123456",
                            "id": "1"
                        }
                    ],
                    "users": [
                        {
                            "muserId": "admin",
                            "backendAccountType": "RamUser",
                            "enableDingTalk": "false",
                            "mtime": "1606791494471",
                            "organizationId": "1",
                            "password": "H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSm
ArS",
```

```
                    "default": "true",
                    "loginTime": "1606791494471",
                    "userLoginCtrlId": "34",
                    "loginName": "test",
                    "ctime": "1606791494471",
                    "id": "1",
                    "enableShortMessage": "false",
                    "email": "xxx@alibaba-inc.com",
                    "defaultRoleId": "1",
                    "cellphoneNum": "00000000000",
                    "aliyunUser": "false",
                    "accountType": "1",
                    "active": "true",
                    "deleted": "false",
                    "mobileNationCode": "86",
                    "ramUser": "true",
                    "enableEmail": "false",
                    "username": "test"
                }
            ],
            "roles": [
                {
                    "roleRange": "roleRange.orgAndSubOrgs",
                    "rAMRole": "false",
                    "muserId": "admin",
                    "arId": "123456",
                    "code": "ROLE_RESOURCE_USER",
                    "description": "test",
                    "active": "true",
                    "roleType": "ROLETYPE_ASCM",
                    "default": "true",
                    "ownerOrganizationId": "1",
                    "enable": "true",
                    "roleName": "defaultRole.resourceUser.name",
                    "roleLevel": "1231",
                    "id": "1",
                    "organizationVisibility": "organizationVisibility.global",
                    "cuserId": "admin"
                }
            ]
        },
        {
            "organization": {
                "muserId": "admin",
                "internal": "true",
                "level": "123",
                "supportRegions": "[\"cn-**-d01\"]",
                "mtime": "1606791494471",
                "uuid": "123456",
                "parentId": "1",
                "multiCloudStatus": "master",
                "supportRegionList": "cn-**-d01",
                "name": "test",
                "ctime": "1606791494471",
                "alias": "test"
```

```
                    "alias": "test",
                    "id": "1",
                    "cuserId": "admin"
                }
            }
        ],
        "userRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "1111",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "defaultRole.resourceUser.name",
                "roleLevel": "123",
                "id": "1",
                "organizationVisibility": "defaultRole.resourceUser.description",
                "cuserId": "admin"
            }
        ],
        "accessKeys": [
            {
                "ctime": "1606675230000",
                "id": "1",
                "region": "cn-**-d01",
                "cuserId": "5013",
                "status": "ACTIVE",
                "accesskeyId": "JGdgSN2pVYahtrd7"
            }
        ],
        "roles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "111",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "111",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
```

```
            ]
        },
        {
            "defaultRole": {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "111",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "1",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global"
            },
            "loginPolicy": {
                "ipRanges": [
                    {
                        "ipRange": "0.0.0.0",
                        "protocol": "IPV4",
                        "loginPolicyId": "1"
                    }
                ],
                "muserId": "admin",
                "default": "false",
                "ownerOrganizationId": "1",
                "timeRanges": [
                    {
                        "startTime": "00.00",
                        "loginPolicyId": "1",
                        "endTime": "24:00"
                    }
                ],
                "enable": "true",
                "name": "policy_test",
                "rule": "ALLOW",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "lpId": "111",
                "cuserId": "admin"
            },
            "organization": {
                "muserId": "admin",
                "internal": "true",
                "level": "0.1",
                "supportRegions": "[\"cn-***-d01\"]",
                "mtime": "1606791494471",
                "uuid": "123456",
                "parentId": "1",
```

```
                "multiCloudStatus": "master",
                "supportRegionList": "cn-***-d01",
                "name": "test",
                "ctime": "1607512443989",
                "alias": "test",
                "id": "1",
                "cuserId": "admin"
            }
        }
    ],
    "success": "true",
    "pageInfo": {
        "total": "39",
        "totalPage": "2",
        "pageSize": "20",
        "currentPage": "1"
    },
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4.9. ListDeletedUsers

Queries the list of deleted users.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListDeletedUsers	The operation that you want to perform. Set the value to ListDeletedUsers.
LoginName	String	No	testu	The logon name of the user.
CurrentPage	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.

Parameter	Type	Example	Description
cost	Integer	1000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
dataItem			
cellphoneNum	String	00000000000	The mobile number of the user.
default	Boolean	false	Indicates whether the user is a preset user.
deleted	Boolean	true	Indicates whether the user is deleted.
displayName	String	test	The display name of the user.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
lastLoginTime	Long	1231212	The most recent logon time.
loginName	String	test	The logon name of the user.
mobileNationCode	String	86	The country code.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.

Parameter	Type	Example	Description
message	String	success	The error message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	20	The number of entries returned per page.
total	Integer	2	The total number of entries returned.
totalPage	Integer	39	The total number of pages.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListDeletedUsers
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <cellphoneNum>00000000000</cellphoneNum>
    <enableDingTalk>false</enableDingTalk>
    <displayName>test</displayName>
    <lastLoginTime>1231212</lastLoginTime>
    <default>false</default>
    <deleted>true</deleted>
    <loginName>test</loginName>
    <mobileNationCode>86</mobileNationCode>
    <id>1</id>
    <enableEmail>false</enableEmail>
    <enableShortMessage>false</enableShortMessage>
    <email>test@163.com</email>
    <status>ACTIVE</status>
</data>
<success>true</success>
<pageInfo>
    <total>2</total>
    <totalPage>39</totalPage>
    <pageSize>20</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": [
        {
            "cellphoneNum": "00000000000",
            "enableDingTalk": "false",
            "displayName": "test",
            "lastLoginTime": "1231212",
            "default": "false",
            "deleted": "true",
            "loginName": "test",
            "mobileNationCode": "86",
            "id": "1",
            "enableEmail": "false",
            "enableShortMessage": "false",
            "email": "test@163.com",
            "status": "ACTIVE"
        }
    ],
    "success": "true",
    "pageInfo": {
        "total": "2",
        "totalPage": "39",
        "pageSize": "20",
        "currentPage": "1"
    },
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4.10. ListResourceGroupByAscmUserId

Queries the list of resource sets of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListResourceGroupByAscmUserId	The operation that you want to perform. Set the value to ListResourceGroupByAscmUserId.
ascmuser_id	Integer	Yes	5	The ID of the user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	12314	The time when the resource set was created.
gmtModified	Long	12314	The time when the resource set was modified.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
resourceGroupName	String	test	The name of the resource set.
resourceGroupType	Integer	1	The type of the resource set. 1 indicates the default resource set. If you leave this parameter empty, all the resource sets other than the default one are specified.
rsId	String	rs-123144	The ID of the resource set.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListResourceGroupByAscmUserId
&ascmuser_id=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <organizationID>1</organizationID>
    <gmtModified>12314</gmtModified>
    <creator>admin</creator>
    <resourceGroupName>test</resourceGroupName>
    <gmtCreated>12314</gmtCreated>
    <rsId>rs-123144</rsId>
    <resourceGroupType>1</resourceGroupType>
    <id>1</id>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": [
        {
            "organizationID": "1",
            "gmtModified": "12314",
            "creator": "admin",
            "resourceGroupName": "test",
            "gmtCreated": "12314",
            "rsId": "rs-123144",
            "resourceGroupType": "1",
            "id": "1"
        }
    ],
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.4.11. ModifyUserInformation

Modifies the information of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyUserInformation	The operation that you want to perform. Set the value to ModifyUserInformation.
Id	Integer	No	100	The ID of the user.
LoginName	String	No	test	The logon name of the user.
DisplayName	String	No	test	The display name of the user.
LoginPolicyId	Integer	No	100	The ID of the logon policy.
MobileNationCode	String	No	test	The country code.
CellphoneNum	String	No	12345678	The mobile number of the user.
TelephoneNum	String	No	12345678	The landline number of the user.
Email	String	No	est@test.com	The email address of the user.
Description	String	No	test	The description of the user.
DingTalkToken	String	No	abc123	The DingTalk token.
EnableDingTalk	Boolean	No	false	Specifies whether to use DingTalk to send notifications.
EnableShortMessage	Boolean	No	false	Specifies whether to use SMS to send notifications.
EnableEmail	Boolean	No	false	Specifies whether to use emails to send notifications.

Parameter	Type	Required	Example	Description
MultiCloudStatus	String	No	master	Specifies whether the user is a multi-cloud user. Valid values: master and slave. master indicates a primary-cloud user. slave indicates a secondary-cloud user.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID.
ctime	Long	1606675230000	The time when the AccessKey pair was created.
cuserId	String	admin	The user who created the AccessKey pair.
id	Integer	1	The ID of the AccessKey pair.
region	String	cn-qingdao-env17-d01	The region where the AccessKey pair is available.
status	String	ACTIVE	The status of the AccessKey pair. Valid values: active and inactive.
cellphoneNum	String	0000000000	The mobile number of the user.
default	Boolean	false	Indicates whether the role is a preset role.

Parameter	Type	Example	Description
defaultRole	Struct		The default role.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a Resource Access Management (RAM) role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	test	The display name of the user.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
lastLoginTime	Long	1606675230000	The most recent logon time.
loginName	String	test	The logon name of the user.
loginPolicy	Struct		The logon policy.

Parameter	Type	Example	Description
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	11213	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	default.loginpolicy	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the organization.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.

Parameter	Type	Example	Description
startTime	String	00:00	The start of the time range for the query.
mobileNationCode	String	86	The country code.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.

Parameter	Type	Example	Description
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	11231	The universally unique identifier (UUID) of the organization.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the RAM user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admmin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.
userGroupRoles	Array of userGroupRole		The list of roles of the user group.
active	Boolean	true	Indicates whether the role is valid.

Parameter	Type	Example	Description
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
userGroups	Array of userGroup		The list of user groups.
augId	String	11231	The ID of the user group.
createTimeStamp	Long	1606675230000	The time when the user group was created.
groupName	String	group_test	The name of the user group.
id	Integer	1	The ID of the user group.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606675230000	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606675230000	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	11231	The UUID of the organization.
organizationId	Integer	1	The ID of the organization.
resourceSets	Array of resourceSet		The list of resource sets.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	1606675230000	The time when the resource set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
resourceGroupName	String	res_test	The name of the resource set.
rsId	String	11231a	The unique code.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	false	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.

Parameter	Type	Example	Description
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
users	Array of user		The list of users.
accountType	Integer	1	The type of the account. This parameter is discarded and is not processed in the code. The default value is used.
active	Boolean	true	Indicates whether the user is valid.
aliyunUser	Boolean	false	Indicates whether the account is an Apsara Stack tenant account.
backendAccountType	String	1	The type of the account. Valid values: • AscmUser: the user who is visible to customers in the Apsara Uni-manager Management Console • AliyunUser: the Apsara Stack tenant account • RamUser: the RAM user

Parameter	Type	Example	Description
cellphoneNum	String	00000000000	The mobile number of the user.
ctime	Long	1606675230000	The time when the user was created.
default	Boolean	false	Indicates whether the user is a preset user.
defaultRoleId	Integer	1	The ID of the default role.
deleted	Boolean	false	Indicates whether the user is deleted.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginTime	Long	1606675230000	The time when the user logged on.
mobileNationCode	String	86	The country code.
mtime	Long	1606675230000	The time when the user was modified.
muserId	String	admin	The one who calls the operation to modify the user.
organizationId	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
password	String	H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS	The password of the user.
ramUser	Boolean	false	Indicates whether the account is a RAM user.
userLoginCtrlId	Integer	34	The ID of the logon control.
username	String	test	The display name of the user.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the role is valid.
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: • roleRange.allOrganizations: The role has permissions on all organizations. • roleRange.orgAndSubOrgs: The role has permissions on the organization and its subordinate organizations. • roleRange.resourceSet: The role has permissions on the resource set. • roleRange.userGroup: The role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.

Parameter	Type	Example	Description
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyUserInformation
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <cellphoneNum>0000000000</cellphoneNum>
    <defaultRole>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>111</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11231</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </defaultRole>
    <enableDingTalk>false</enableDingTalk>
    <displayName>test</displayName>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admmin</muserId>
        <arId>11231</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>role_test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
```

```
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11231</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </roles>
    <loginPolicy>
        <ipRanges>
            <ipRange>0.0.0.0/0</ipRange>
            <protocol>IPV4</protocol>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId>admin</muserId>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
            <startTime>00:00</startTime>
            <loginPolicyId>1</loginPolicyId>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>default.loginpolicy</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <lpId>11213</lpId>
        <cuserId>admin</cuserId>
    </loginPolicy>
    <parentPk>1689406703302188</parentPk>
    <lastLoginTime>1606675230000</lastLoginTime>
    <userGroups>
        <organizationId>1</organizationId>
        <createTimeStamp>1606675230000</createTimeStamp>
        <groupName>group_test</groupName>
        <augId>11231</augId>
        <id>1</id>
    </userGroups>
    <userGroups>
        <resourceSets>
            <organizationID>1</organizationID>
            <creator>admin</creator>
            <resourceGroupName>res_test</resourceGroupName>
            <gmtCreated>1606675230000</gmtCreated>
            <rsId>11231a</rsId>
            <id>1</id>
        </resourceSets>
        <users>
            <muserId>admin</muserId>
            <backendAccountType>1</backendAccountType>
            <enableDingTalk>false</enableDingTalk>
            <mtime>1606675230000</mtime>
            <organizationId>1</organizationId>
```

```
            <password>H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS</password>
            <default>false</default>
            <loginTime>1606675230000</loginTime>
            <userLoginCtrlId>34</userLoginCtrlId>
            <loginName>test</loginName>
            <ctime>1606675230000</ctime>
            <id>1</id>
            <enableShortMessage>false</enableShortMessage>
            <email>test@163.com</email>
            <defaultRoleId>1</defaultRoleId>
            <cellphoneNum>00000000000</cellphoneNum>
            <aliyunUser>false</aliyunUser>
            <accountType>1</accountType>
            <active>true</active>
            <deleted>false</deleted>
            <mobileNationCode>86</mobileNationCode>
            <ramUser>false</ramUser>
            <enableEmail>false</enableEmail>
            <username>test</username>
        </users>
        <roles>
            <roleRange>roleRange.orgAndSubOrgs</roleRange>
            <rAMRole>false</rAMRole>
            <muserId>admin</muserId>
            <arId>11231</arId>
            <code>ROLE_RESOURCE_USER</code>
            <description>role_test</description>
            <active>true</active>
            <roleType>ROLETYPE_ASCM</roleType>
            <default>false</default>
            <ownerOrganizationId>1</ownerOrganizationId>
            <enable>true</enable>
            <roleName>role_test</roleName>
            <roleLevel>11231</roleLevel>
            <id>1</id>
            <organizationVisibility>organizationVisibility.global</organizationVisibility>
            <cuserId>admin</cuserId>
        </roles>
    </userGroups>
    <userGroups>
        <organization>
            <muserId>admin</muserId>
            <internal>false</internal>
            <level>0.1</level>
            <supportRegions>cn-qingdao-env17-d01</supportRegions>
            <mtime>1606675230000</mtime>
            <uuid>11231</uuid>
            <parentId>0</parentId>
            <multiCloudStatus>master</multiCloudStatus>
            <supportRegionList>["cn-qingdao-env17-d01"]</supportRegionList>
            <name>test</name>
            <ctime>1606675230000</ctime>
            <alias>test</alias>
            <id>1</id>
```

```
            <cuserId>admin</cuserId>
        </organization>
    </userGroups>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>11231</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>role_test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11231</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </userRoles>
    <default>false</default>
    <accessKeys>
        <ctime>1606675230000</ctime>
        <id>1</id>
        <region>cn-qingdao-env17-d01</region>
        <cuserId>admin</cuserId>
        <status>ACTIVE</status>
        <accesskeyId>JGdgSN2pVYahtrd7</accesskeyId>
    </accessKeys>
    <deleted>false</deleted>
    <loginName>test</loginName>
    <organization>
        <muserId>admin</muserId>
        <internal>false</internal>
        <level>0.1</level>
        <supportRegions>cn-qingdao-env17-d01</supportRegions>
        <mtime>1606791494471</mtime>
        <uuid>11231</uuid>
        <parentId>0</parentId>
        <multiCloudStatus>master</multiCloudStatus>
        <supportRegionList>["cn-qingdao-env17-d01"]</supportRegionList>
        <name>test</name>
        <ctime>1606791494471</ctime>
        <alias>test</alias>
        <id>1</id>
        <cuserId>admin</cuserId>
    </organization>
    <userGroupRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <muserId>admin</muserId>
        <arId>11231</arId>
        <code>ROLE_RESOURCE_USER</code>
        <description>role_test</description>
```

```
        <description>role_test</description>
        <active>true</active>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>role_test</roleName>
        <roleLevel>11231</roleLevel>
        <id>1</id>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
        <cuserId>admin</cuserId>
    </userGroupRoles>
    <mobileNationCode>86</mobileNationCode>
    <id>1</id>
    <enableEmail>false</enableEmail>
    <enableShortMessage>false</enableShortMessage>
    <email>test@163.com</email>
    <status>ACTIVE</status>
    <primaryKey>21253050670403046 6</primaryKey>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "cellphoneNum": "0000000000",
        "defaultRole": {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": "false",
            "muserId": "admin",
            "arId": "111",
            "code": "ROLE_RESOURCE_USER",
            "description": "test",
            "active": "true",
            "roleType": "ROLETYPE_ASCM",
            "default": "true",
            "ownerOrganizationId": "1",
            "enable": "true",
            "roleName": "role_test",
            "roleLevel": "11231",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global"
        },
        "enableDingTalk": "false",
        "displayName": "test",
        "roles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
```

```
                "rAMRole": "false",
                "muserId": "admmin",
                "arId": "11231",
                "code": "ROLE_RESOURCE_USER",
                "description": "role_test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11231",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
        ],
        "loginPolicy": {
            "ipRanges": [
                {
                    "ipRange": "0.0.0.0/0",
                    "protocol": "IPV4",
                    "loginPolicyId": "1"
                }
            ],
            "muserId": "admin",
            "default": "true",
            "ownerOrganizationId": "1",
            "timeRanges": [
                {
                    "startTime": "00:00",
                    "loginPolicyId": "1",
                    "endTime": "24:00"
                }
            ],
            "enable": "true",
            "name": "default.loginpolicy",
            "rule": "ALLOW",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global",
            "lpId": "11213",
            "cuserId": "admin"
        },
        "parentPk": "1689406703302188",
        "lastLoginTime": "1606675230000",
        "userGroups": [
            {
                "organizationId": "1",
                "createTimeStamp": "1606675230000",
                "groupName": "group_test",
                "augId": "11231",
                "id": "1"
            },
            {
```

```
                "resourceSets": [
                    {
                        "organizationID": "1",
                        "creator": "admin",
                        "resourceGroupName": "res_test",
                        "gmtCreated": "1606675230000",
                        "rsId": "11231a",
                        "id": "1"
                    }
                ],
                "users": [
                    {
                        "muserId": "admin",
                        "backendAccountType": "1",
                        "enableDingTalk": "false",
                        "mtime": "1606675230000",
                        "organizationId": "1",
                        "password": "H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS"
,
                        "default": "false",
                        "loginTime": "1606675230000",
                        "userLoginCtrlId": "34",
                        "loginName": "test",
                        "ctime": "1606675230000",
                        "id": "1",
                        "enableShortMessage": "false",
                        "email": "test@163.com",
                        "defaultRoleId": "1",
                        "cellphoneNum": "00000000000",
                        "aliyunUser": "false",
                        "accountType": "1",
                        "active": "true",
                        "deleted": "false",
                        "mobileNationCode": "86",
                        "ramUser": "false",
                        "enableEmail": "false",
                        "username": "test"
                    }
                ],
                "roles": [
                    {
                        "roleRange": "roleRange.orgAndSubOrgs",
                        "rAMRole": "false",
                        "muserId": "admin",
                        "arId": "11231",
                        "code": "ROLE_RESOURCE_USER",
                        "description": "role_test",
                        "active": "true",
                        "roleType": "ROLETYPE_ASCM",
                        "default": "false",
                        "ownerOrganizationId": "1",
                        "enable": "true",
                        "roleName": "role_test",
                        "roleLevel": "11231",
                        "id": "1"
```

```
                    "id": "1",
                    "organizationVisibility": "organizationVisibility.global",
                    "cuserId": "admin"
                }
            ]
        },
        {
            "organization": {
                "muserId": "admin",
                "internal": "false",
                "level": "0.1",
                "supportRegions": "cn-qingdao-env17-d01",
                "mtime": "1606675230000",
                "uuid": "11231",
                "parentId": "0",
                "multiCloudStatus": "master",
                "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
                "name": "test",
                "ctime": "1606675230000",
                "alias": "test",
                "id": "1",
                "cuserId": "admin"
            }
        }
    ],
    "userRoles": [
        {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": "false",
            "muserId": "admin",
            "arId": "11231",
            "code": "ROLE_RESOURCE_USER",
            "description": "role_test",
            "active": "true",
            "roleType": "ROLETYPE_ASCM",
            "default": "true",
            "ownerOrganizationId": "1",
            "enable": "true",
            "roleName": "role_test",
            "roleLevel": "11231",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global",
            "cuserId": "admin"
        }
    ],
    "default": "false",
    "accessKeys": [
        {
            "ctime": "1606675230000",
            "id": "1",
            "region": "cn-qingdao-env17-d01",
            "cuserId": "admin",
            "status": "ACTIVE",
            "accesskeyId": "JGdgSN2pVYahtrd7"
        }
```

```
        ],
        "deleted": "false",
        "loginName": "test",
        "organization": {
            "muserId": "admin",
            "internal": "false",
            "level": "0.1",
            "supportRegions": "cn-qingdao-env17-d01",
            "mtime": "1606791494471",
            "uuid": "11231",
            "parentId": "0",
            "multiCloudStatus": "master",
            "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
            "name": "test",
            "ctime": "1606791494471",
            "alias": "test",
            "id": "1",
            "cuserId": "admin"
        },
        "userGroupRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "11231",
                "code": "ROLE_RESOURCE_USER",
                "description": "role_test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11231",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
        ],
        "mobileNationCode": "86",
        "id": "1",
        "enableEmail": "false",
        "enableShortMessage": "false",
        "email": "test@163.com",
        "status": "ACTIVE",
        "primaryKey": "212530506704030466"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.4.12. RecoverUserByLoginName

Restores a deleted user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RecoverUserByLoginName	The operation that you want to perform. Set the value to RecoverUserByLoginName.
LoginName	String	Yes	testtest	The logon name of the user.
OrganizationId	Integer	Yes	5	The ID of the organization.
roleIdList	Json	No	{"RoleIdList": ["5", "6", "8"]}	The list of roles.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
accessKeys	Array of accessKey		The list of AccessKey pairs.
accesskeyId	String	JGdgSN2pVYahtrd7	The AccessKey ID.
ctime	Long	1606675230000	The time when the AccessKey pair was created.
cuserId	String	admin	The user who created the AccessKey pair.
id	Integer	1	The AccessKey ID.

Parameter	Type	Example	Description
region	String	cn-qingdao-env17-d01	The region where the AccessKey pair is available.
status	String	ACTIVE	Indicates whether the AccessKey pair is valid. Valid values: active and inactive.
cellphoneNum	String	00000000000	The mobile number of the user.
default	Boolean	false	Indicates whether the role is a preset role.
defaultRole	Struct		The default role.
active	Boolean	true	Indicates whether the role is valid.
arId	String	111	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: organizationVisibility.global, organizationVisibility.organization, and organizationVisibility.orgAndSubOrgs. organizationVisibility.global indicates that the role is globally shared. organizationVisibility.organization indicates that the role is shared within the same organization. organizationVisibility.orgAndSubOrgs indicates that the role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a Resource Access Management (RAM) role.
roleLevel	Integer	11321	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: roleRange.allOrganizations, roleRange.orgAndSubOrgs, roleRange.resourceSet, and roleRange.userGroup. roleRange.allOrganizations indicates that the role has permissions on all organizations. roleRange.orgAndSubOrgs indicates that the role has permissions on the organization and its subordinate organizations. roleRange.resourceSet indicates that the role has permissions on the resource set. roleRange.userGroup indicates that the role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates RAM roles. ROLETYPE_ASCM indicates custom roles.
deleted	Boolean	false	Indicates whether the user is deleted.
displayName	String	test	The display name of the user.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.

Parameter	Type	Example	Description
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
lastLoginTime	Long	1606675230000	The most recent logon time.
loginName	String	test	The logon name of the user.
loginPolicy	Struct		The logon policy.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRang		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	11231	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	default.loginpolicy	The name of the logon policy.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: organizationVisibility.global, organizationVisibility.organization, and organizationVisibility.orgAndSubOrgs. organizationVisibility.global indicates that the logon policy is globally shared. organizationVisibility.organization indicates that the logon policy is shared within the same organization. organizationVisibility.orgAndSubOrgs indicates that the logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRang		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The start of the time range for the query.
mobileNationCode	String	86	The country code.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606791494471	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606791494471	The time when the organization was modified.
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	11231	The universally unique identifier (UUID) of the organization.
parentPk	String	1689406703302188	The primary key of the Apsara Stack tenant account.
primaryKey	String	212530506704030466	The primary key of the RAM user.
roles	Array of role		The list of roles.
active	Boolean	true	Indicates whether the role is valid.
arId	String	112311	The ID of the role.

Parameter	Type	Example	Description
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	role_test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: organizationVisibility.global, organizationVisibility.organization, and organizationVisibility.orgAndSubOrgs. organizationVisibility.global indicates that the role is globally shared. organizationVisibility.organization indicates that the role is shared within the same organization. organizationVisibility.orgAndSubOrgs indicates that the role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: roleRange.allOrganizations, roleRange.orgAndSubOrgs, roleRange.resourceSet, and roleRange.userGroup. roleRange.allOrganizations indicates that the role has permissions on all organizations. roleRange.orgAndSubOrgs indicates that the role has permissions on the organization and its subordinate organizations. roleRange.resourceSet indicates that the role has permissions on the resource set. roleRange.userGroup indicates that the role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
status	String	ACTIVE	The status of the user. Valid values: active and inactive.
userGroupRoles	Array of userGroupRole		The list of roles of the user group.
active	Boolean	true	Indicates whether the role is valid.
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.

Parameter	Type	Example	Description
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: organizationVisibility.global, organizationVisibility.organization, and organizationVisibility.orgAndSubOrgs. organizationVisibility.global indicates that the role is globally shared. organizationVisibility.organization indicates that the role is shared within the same organization. organizationVisibility.orgAndSubOrgs indicates that the role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: roleRange.allOrganizations, roleRange.orgAndSubOrgs, roleRange.resourceSet, and roleRange.userGroup. roleRange.allOrganizations indicates that the role has permissions on all organizations. roleRange.orgAndSubOrgs indicates that the role has permissions on the organization and its subordinate organizations. roleRange.resourceSet indicates that the role has permissions on the resource set. roleRange.userGroup indicates that the role has permissions on the user group to which the RAM role belongs.

Parameter	Type	Example	Description
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
userGroups	Array of userGroups		The list of user groups.
augId	String	11231	The ID of the user group.
createTimeStamp	Long	1606675230000	The time when the user group was created.
groupName	String	group_test	The name of the user group.
id	Integer	1	The ID of the user group.
organization	Struct		The information of the organization.
alias	String	test	The alias of the organization.
ctime	Long	1606675230000	The time when the organization was created.
cuserId	String	admin	The user who created the organization.
id	Integer	1	The ID of the organization.
internal	Boolean	false	Indicates whether the organization is a preset organization.
level	String	0.1	The level of the organization.
mtime	Long	1606675230000	The time when the organization was modified.

Parameter	Type	Example	Description
multiCloudStatus	String	master	Indicates whether the organization is a multi-cloud organization. Valid values: master and slave. master indicates a primary-cloud organization. slave indicates a secondary-cloud organization.
muserId	String	admin	The user who modified the organization.
name	String	test	The name of the organization.
parentId	Integer	0	The ID of the parent organization.
supportRegionList	List	["cn-qingdao-env17-d01"]	The list of regions.
supportRegions	String	cn-qingdao-env17-d01	The list of regions.
uuid	String	11231	The UUID of the organization.
organizationId	Integer	1	The ID of the organization.
resourceSets	Array of resourceSet		The list of resource sets.
creator	String	admin	The creator of the resource set.
gmtCreated	Long	1606675230000	The time when the resource set was created.
id	Integer	1	The ID of the resource set.
organizationID	Integer	1	The ID of the organization.
resourceGroupName	String	res_test	The name of the resource set.
rsId	String	11231	The ID of the resource set.
roles	Array of role		The list of roles.

Parameter	Type	Example	Description
active	Boolean	true	Indicates whether the role is valid.
arId	String	11231	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: organizationVisibility.global, organizationVisibility.organization, and organizationVisibility.orgAndSubOrgs. organizationVisibility.global indicates that the role is globally shared. organizationVisibility.organization indicates that the role is shared within the same organization. organizationVisibility.orgAndSubOrgs indicates that the role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.

Parameter	Type	Example	Description
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: roleRange.allOrganizations, roleRange.orgAndSubOrgs, roleRange.resourceSet, and roleRange.userGroup. roleRange.allOrganizations indicates that the role has permissions on all organizations. roleRange.orgAndSubOrgs indicates that the role has permissions on the organization and its subordinate organizations. roleRange.resourceSet indicates that the role has permissions on the resource set. roleRange.userGroup indicates that the role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
users	Array of user		The list of users.
accountType	Integer	1	The type of the account. This parameter is discarded and is not processed in the code. The default value is used.
active	Boolean	true	Indicates whether the user is valid.
aliyunUser	Boolean	false	Indicates whether the account is an Apsara Stack tenant account.
backendAccountType	String	1	The type of the account. Valid values: AscmUser, AliyunUser, and RamUser. AscmUser indicates a user who is visible to customers in the Apsara Uni-manager Management Console. AliyunUser indicates an Apsara Stack tenant account. RamUser indicates a RAM user.
cellphoneNum	String	00000000000	The mobile number of the user.

Parameter	Type	Example	Description
ctime	Long	1606675230000	The time when the user was created.
default	Boolean	false	Indicates whether the user is a preset user.
defaultRoleId	Integer	1	The ID of the default role.
deleted	Boolean	false	Indicates whether the user is deleted.
email	String	test@163.com	The email address of the user.
enableDingTalk	Boolean	false	Indicates whether to use DingTalk to send notifications.
enableEmail	Boolean	false	Indicates whether to use emails to send notifications.
enableShortMessage	Boolean	false	Indicates whether to use SMS to send notifications.
id	Integer	1	The ID of the user.
loginName	String	test	The logon name of the user.
loginTime	Long	1606675230000	The time when the user logged on.
mobileNationCode	String	86	The country code.
mtime	Long	1606675230000	The time when the user was modified.
muserId	String	admin	The one who calls the operation to modify the user.
organizationId	Integer	1	The ID of the organization.

Parameter	Type	Example	Description
password	String	H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS	The password of the cluster user.
ramUser	Boolean	true	Indicates whether the account is a RAM user.
userLoginCtrlId	Integer	34	The ID of the logon control.
username	String	test	The display name of the user.
userRoles	Array of userRole		The list of roles of the user.
active	Boolean	true	Indicates whether the role is valid.
arId	String	11321	The ID of the role.
code	String	ROLE_RESOURCE_USER	The code of the role.
cuserId	String	admin	The user who created the role.
default	Boolean	true	Indicates whether the role is a preset role.
description	String	test	The description of the role.
enable	Boolean	true	Indicates whether the role is valid.
id	Integer	1	The ID of the role.
muserId	String	admin	The user who modified the role.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the role. Valid values: • organizationVisibility.global: The role is globally shared. • organizationVisibility.organization: The role is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The role is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rAMRole	Boolean	false	Indicates whether the role is a RAM role.
roleLevel	Integer	11231	The level of the role.
roleName	String	role_test	The name of the role.
roleRange	String	roleRange.orgAndSubOrgs	The permissions of the role. Valid values: roleRange.allOrganizations, roleRange.orgAndSubOrgs, roleRange.resourceSet, and roleRange.userGroup. roleRange.allOrganizations indicates that the role has permissions on all organizations. roleRange.orgAndSubOrgs indicates that the role has permissions on the organization and its subordinate organizations. roleRange.resourceSet indicates that the role has permissions on the resource set. roleRange.userGroup indicates that the role has permissions on the user group to which the RAM role belongs.
roleType	String	ROLETYPE_ASCM	The type of the role. Valid values: ROLETYPE_RAM and ROLETYPE_ASCM. ROLETYPE_RAM indicates a RAM role. ROLETYPE_ASCM indicates a custom role.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.

Parameter	Type	Example	Description
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RecoverUserByLoginName
&LoginName=testtest
&OrganizationId=5
&<Common request parameters>
```

Sample success response

`XML` format

```
<redirect>false</redirect>
<code>200</code>
<cost>746</cost>
<data>
    <cellphoneNum>13311111111</cellphoneNum>
    <displayName>fengyueSubOrgAdmin2</displayName>
    <enableDingTalk>true</enableDingTalk>
    <roles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <rAMRole>false</rAMRole>
        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
        <id>4</id>
        <roleLevel>2147483647</roleLevel>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </roles>
    <loginPolicy>
        <ipRanges>
            <protocol>IPV4</protocol>
            <ipRange>0.0.0.0/0</ipRange>
            <loginPolicyId>1</loginPolicyId>
        </ipRanges>
        <muserId/>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <timeRanges>
```

```
            <loginPolicyId>1</loginPolicyId>
            <startTime>00:00</startTime>
            <endTime>24:00</endTime>
        </timeRanges>
        <enable>true</enable>
        <name>defaultLoginPolicy.name</name>
        <rule>ALLOW</rule>
        <id>1</id>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </loginPolicy>
    <parentPk>1809392454221726</parentPk>
    <lastLoginTime>1592465207953</lastLoginTime>
    <userRoles>
        <roleRange>roleRange.orgAndSubOrgs</roleRange>
        <muserId/>
        <rAMRole>false</rAMRole>
        <code>ROLE_ORGANIZATION_ADMIN</code>
        <active>true</active>
        <description>defaultRole.organizationAdmin.description</description>
        <roleType>ROLETYPE_ASCM</roleType>
        <default>true</default>
        <ownerOrganizationId>1</ownerOrganizationId>
        <enable>true</enable>
        <roleName>defaultRole.organizationAdmin.name</roleName>
        <id>4</id>
        <roleLevel>2147483647</roleLevel>
        <cuserId/>
        <organizationVisibility>organizationVisibility.global</organizationVisibility>
    </userRoles>
    <accessKeys>
        <ctime>1592454572000</ctime>
        <id>673</id>
        <region>cn-qingdao-env17-d01</region>
        <cuserId>fengyueOrgAdmin2</cuserId>
        <accesskeyId>0qZ6FBmehXS2YgGA</accesskeyId>
        <status>ACTIVE</status>
    </accessKeys>
    <default>false</default>
    <deleted>false</deleted>
    <loginName>fengyueSubOrgAdmin2</loginName>
    <organization>
        <muserId/>
        <internal>false</internal>
        <multiCloudStatus/>
        <level>0.1.377</level>
        <name>suborg</name>
        <alias>suborg</alias>
        <id>379</id>
        <cuserId/>
        <uuid>null</uuid>
        <parentId>377</parentId>
    </organization>
    <id>5679</id>
```

```
    <mobileNationCode>86</mobileNationCode>
    <enableEmail>true</enableEmail>
    <email>1@1.com</email>
    <enableShortMessage>true</enableShortMessage>
    <primaryKey>228648192465372091</primaryKey>
    <status>ACTIVE</status>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "cellphoneNum": "00000000000",
        "defaultRole": {
            "roleRange": "roleRange.orgAndSubOrgs",
            "rAMRole": "false",
            "muserId": "admin",
            "arId": "111",
            "code": "ROLE_RESOURCE_USER",
            "description": "test",
            "active": "true",
            "roleType": "ROLETYPE_ASCM",
            "default": "true",
            "ownerOrganizationId": "1",
            "enable": "true",
            "roleName": "role_test",
            "roleLevel": "11321",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global"
        },
        "enableDingTalk": "false",
        "displayName": "test",
        "roles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "112311",
                "code": "ROLE_RESOURCE_USER",
                "description": "role_test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11231",
                "id": "1",
```

```
            "organizationVisibility": "organizationVisibility.global",
            "cuserId": "admin"
        }
    ],
    "loginPolicy": {
        "ipRanges": [
            {
                "ipRange": "0.0.0.0/0",
                "protocol": "IPV4",
                "loginPolicyId": "1"
            }
        ],
        "muserId": "admin",
        "default": "true",
        "ownerOrganizationId": "1",
        "timeRanges": [
            {
                "startTime": "00:00",
                "loginPolicyId": "1",
                "endTime": "24:00"
            }
        ],
        "enable": "true",
        "name": "default.loginpolicy",
        "rule": "ALLOW",
        "id": "1",
        "organizationVisibility": "organizationVisibility.global",
        "lpId": "11231",
        "cuserId": "admin"
    },
    "parentPk": "1689406703302188",
    "lastLoginTime": "1606675230000",
    "userGroups": [
        {
            "organizationId": "1",
            "createTimeStamp": "1606675230000",
            "groupName": "group_test",
            "augId": "11231",
            "id": "1"
        },
        {
            "resourceSets": [
                {
                    "organizationID": "1",
                    "creator": "admin",
                    "resourceGroupName": "res_test",
                    "gmtCreated": "1606675230000",
                    "rsId": "11231",
                    "id": "1"
                }
            ],
            "users": [
                {
                    "muserId": "admin",
```

```
                        "backendAccountType": "1",
                        "enableDingTalk": "false",
                        "mtime": "1606675230000",
                        "organizationId": "1",
                        "password": "H2xWNY8oitAhxMWLhtyjsO1fRkYoCRcErAgP9Hd0IXp2f5rRSmArS"
,
                        "default": "false",
                        "loginTime": "1606675230000",
                        "userLoginCtrlId": "34",
                        "loginName": "test",
                        "ctime": "1606675230000",
                        "id": "1",
                        "enableShortMessage": "false",
                        "email": "test@163.com",
                        "defaultRoleId": "1",
                        "cellphoneNum": "00000000000",
                        "aliyunUser": "false",
                        "accountType": "1",
                        "active": "true",
                        "deleted": "false",
                        "mobileNationCode": "86",
                        "ramUser": "true",
                        "enableEmail": "false",
                        "username": "test"
                    }
                ],
                "roles": [
                    {
                        "roleRange": "roleRange.orgAndSubOrgs",
                        "rAMRole": "false",
                        "muserId": "admin",
                        "arId": "11231",
                        "code": "ROLE_RESOURCE_USER",
                        "description": "test",
                        "active": "true",
                        "roleType": "ROLETYPE_ASCM",
                        "default": "true",
                        "ownerOrganizationId": "1",
                        "enable": "true",
                        "roleName": "role_test",
                        "roleLevel": "11231",
                        "id": "1",
                        "organizationVisibility": "organizationVisibility.global",
                        "cuserId": "admin"
                    }
                ]
            },
            {
                "organization": {
                    "muserId": "admin",
                    "internal": "false",
                    "level": "0.1",
                    "supportRegions": "cn-qingdao-env17-d01",
                    "mtime": "1606675230000",
```

```
                    "uuid": "11231",
                    "parentId": "0",
                    "multiCloudStatus": "master",
                    "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
                    "name": "test",
                    "ctime": "1606675230000",
                    "alias": "test",
                    "id": "1",
                    "cuserId": "admin"
                }
            }
        ],
        "userRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "11321",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11231",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
        ],
        "default": "false",
        "accessKeys": [
            {
                "ctime": "1606675230000",
                "id": "1",
                "region": "cn-qingdao-env17-d01",
                "cuserId": "admin",
                "status": "ACTIVE",
                "accesskeyId": "JGdgSN2pVYahtrd7"
            }
        ],
        "deleted": "false",
        "loginName": "test",
        "organization": {
            "muserId": "admin",
            "internal": "false",
            "level": "0.1",
            "supportRegions": "cn-qingdao-env17-d01",
            "mtime": "1606791494471",
            "uuid": "11231",
            "parentId": "0",
            "multiCloudStatus": "master",
```

```
            "supportRegionList": "[\"cn-qingdao-env17-d01\"]",
            "name": "test",
            "ctime": "1606791494471",
            "alias": "test",
            "id": "1",
            "cuserId": "admin"
        },
        "userGroupRoles": [
            {
                "roleRange": "roleRange.orgAndSubOrgs",
                "rAMRole": "false",
                "muserId": "admin",
                "arId": "11231",
                "code": "ROLE_RESOURCE_USER",
                "description": "test",
                "active": "true",
                "roleType": "ROLETYPE_ASCM",
                "default": "true",
                "ownerOrganizationId": "1",
                "enable": "true",
                "roleName": "role_test",
                "roleLevel": "11231",
                "id": "1",
                "organizationVisibility": "organizationVisibility.global",
                "cuserId": "admin"
            }
        ],
        "mobileNationCode": "86",
        "id": "1",
        "enableEmail": "false",
        "enableShortMessage": "false",
        "email": "test@163.com",
        "status": "ACTIVE",
        "primaryKey": "212530506704030466"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.4.13. RemoveRoleFromUser

Unbinds a role from a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveRoleFromUser	The operation that you want to perform. Set the value to RemoveRoleFromUser.

Parameter	Type	Required	Example	Description
LoginName	String	Yes	testu	The logon name of the user.
RoleId	Integer	Yes	5	The ID of the role.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveRoleFromUser
&LoginName=testu
&RoleId=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.5. Logon policies

1.1.2.3.5.1. AddLoginPolicy

Creates a logon policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddLoginPolicy	The operation that you want to perform. Set the value to AddLoginPolicy.
Name	String	Yes	testlp	The name of the logon policy.
Description	String	No	just for test	The description of the logon policy.
Rule	String	No	deny	The rule of the logon policy. Valid values: Allow and Deny.
ipRanges	Json	No	{"IpRanges": [{ " ipRange": "1.1.1.0/24" }, { " ipRange": "2.2.2.5/24" }]}	The list of CIDR blocks.
timeRanges	Json	No	{"TimeRanges ": [{ "startTime ": "11:00", " endTime": " 13:35" }, { " startTime": "12: 00", "endTime": "12:30" }]}	The list of time ranges.

Parameter	Type	Required	Example	Description
Enable	Boolean	No	true	Specifies whether the logon policy is valid.
OrganizationVisibility	String	No	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
ipRanges	Array of ipRang		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.

Parameter	Type	Example	Description
protocol	String	IPV4	The protocol.
lpId	Integer	111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	defaultLoginPolicy.name	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRang		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The start of the time range for the query.
message	String	success	The error message.
pureListData	Boolean	true	Indicates whether only data is returned and other parameters are not returned.

Parameter	Type	Example	Description
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddLoginPolicy
&Name=testlp
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <ipRanges>
        <ipRange>0.0.0.0/0</ipRange>
        <protocol>IPV4</protocol>
        <loginPolicyId>1</loginPolicyId>
    </ipRanges>
    <muserId>admin</muserId>
    <default>true</default>
    <ownerOrganizationId>1</ownerOrganizationId>
    <timeRanges>
        <startTime>00:00</startTime>
        <loginPolicyId>1</loginPolicyId>
        <endTime>24:00</endTime>
    </timeRanges>
    <enable>true</enable>
    <name>defaultLoginPolicy.name</name>
    <rule>ALLOW</rule>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
    <lpId>111</lpId>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<pureListData>true</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "ipRanges": [
            {
                "ipRange": "0.0.0.0/0",
                "protocol": "IPV4",
                "loginPolicyId": "1"
            }
        ],
        "muserId": "admin",
        "default": "true",
        "ownerOrganizationId": "1",
        "timeRanges": [
            {
                "startTime": "00:00",
                "loginPolicyId": "1",
                "endTime": "24:00"
            }
        ],
        "enable": "true",
        "name": "defaultLoginPolicy.name",
        "rule": "ALLOW",
        "organizationVisibility": "organizationVisibility.global",
        "lpId": "111",
        "cuserId": "admin"
    },
    "success": "true",
    "pureListData": "true",
    "message": "success"
}
```


1.1.2.3.5.2. CheckLoginPolicy

Checks a logon policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CheckLoginPolicy	The operation that you want to perform. Set the value to CheckLoginPolicy.

Parameter	Type	Required	Example	Description
Ip	String	Yes	1.1.1.1	The IP address to be checked. Logon policies include whitelist and blacklist policies. • A whitelist policy is used to check the IP addresses from which you can log on. • A blacklist policy is used to check the IP addresses from which you cannot log on.
LoginName	String	Yes	testu	The logon name to be checked.
Time	Long	No	1575889112	The timestamp to be checked. By default, the current system timestamp is used.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Boolean	true	The response.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CheckLoginPolicy
&Ip=1.1.1.1
&LoginName=testu
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>true</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": "true",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.3.5.3. ListLoginPolicies

Queries the list of logon policies.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListLoginPolicies	The operation that you want to perform. Set the value to ListLoginPolicies.
Name	String	No	test	The name of the logon policy.
CurrentPage	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Array of dataItem		The response.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRang		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	1111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	deaultLogin	The name of the logon policy.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRang		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The start of the time range for the query.
userCount	Integer	12	The number of users who use the logon policy.
message	String	success	The error message.
pageInfo	Struct		The page information.
currentPage	Integer	1	The page number of the returned page.
pageSize	Integer	20	The number of entries returned per page.
total	Integer	39	The total number of entries returned.
totalPage	Integer	2	The total number of pages returned.

Parameter	Type	Example	Description
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListLoginPolicies
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <default>true</default>
    <userCount>12</userCount>
    <ownerOrganizationId>1</ownerOrganizationId>
    <enable>true</enable>
    <name>Indicates whether only data is returned and other parameters are not returned.</n
ame>
    <rule>ALLOW</rule>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
    <lpId>1111</lpId>
    <cuserId>admin</cuserId>
</data>
<data>
    <ipRanges>
        <ipRange>0.0.0.0/0</ipRange>
        <protocol>IPV4</protocol>
        <loginPolicyId>1</loginPolicyId>
    </ipRanges>
    <timeRanges>
        <startTime>00:00</startTime>
        <loginPolicyId>1</loginPolicyId>
        <endTime>24:00</endTime>
    </timeRanges>
</data>
<success>true</success>
<pageInfo>
    <total>39</total>
    <totalPage>2</totalPage>
    <pageSize>20</pageSize>
    <currentPage>1</currentPage>
</pageInfo>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": [
        {
            "muserId": "admin",
            "default": "true",
            "userCount": "12",
            "ownerOrganizationId": "1",
            "enable": "true",
            "name": Indicates whether only data is returned and other parameters are not re
turned.
            "rule": "ALLOW",
            "id": "1",
            "organizationVisibility": "organizationVisibility.global",
            "lpId": "1111",
            "cuserId": "admin"
        },
        {
            "ipRanges": [
                {
                    "ipRange": "0.0.0.0/0",
                    "protocol": "IPV4",
                    "loginPolicyId": "1"
                }
            ],
            "timeRanges": [
                {
                    "startTime": "00:00",
                    "loginPolicyId": "1",
                    "endTime": "24:00"
                }
            ]
        }
    ],
    "success": "true",
    "pageInfo": {
        "total": "39",
        "totalPage": "2",
        "pageSize": "20",
        "currentPage": "1"
    },
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.5.4. ModifyLoginPolicy

Modifies a logon policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyLoginPolicy	The operation that you want to perform. Set the value to ModifyLoginPolicy.
Id	Integer	Yes	2	The ID of the logon policy.
Name	String	No	testtttt	The new name of the logon policy.
Description	String	No	tttt	The new description of the logon policy.
Rule	String	No	allow	The rule of the logon policy. Valid values: Allow and Deny.
ipRanges	Json	No	{ "ipRanges": [{ "ipRange": "0.0.0.0/0", "loginPolicyId": 1, "protocol": "IPV4" }]}	The list of new CIDR blocks.
timeRanges	Json	No	{"timeRanges": [{ "endTime": "24:00", "loginPolicyId": 1, "startTime": "00:00" }]}	The list of new time ranges.
Enable	Boolean	No	true	Specifies whether to enable the logon policy.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.

Parameter	Type	Example	Description
cuserId	String	admin	The creator of the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRang		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	lp-1010e681dc790aab5041000y	The ID of the logon policy.
mtime	Long	1608175299345	The time when the logon policy was modified.
muserId	String	admin	The user who modified the logon policy.
name	String	testNew	The name of the logon policy.
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.

Parameter	Type	Example	Description
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRang		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The beginning of the time range for the query.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyLoginPolicy
&Id=2
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <timeRanges>
        <startTime>00:00</startTime>
        <loginPolicyId>1</loginPolicyId>
        <endTime>24:00</endTime>
    </timeRanges>
    <rule>ALLOW</rule>
    <mtime>1608175299345</mtime>
    <lpId>lp-1010e681dc790aab5041000y</lpId>
    <ipRanges>
        <ipRange>0.0.0.0/0</ipRange>
        <protocol>IPV4</protocol>
        <loginPolicyId>1</loginPolicyId>
    </ipRanges>
    <default>true</default>
    <ownerOrganizationId>1</ownerOrganizationId>
    <enable>true</enable>
    <name>testNew</name>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "muserId": "admin",
        "timeRanges": [
            {
                "startTime": "00:00",
                "loginPolicyId": "1",
                "endTime": "24:00"
            }
        ],
        "rule": "ALLOW",
        "mtime": "1608175299345",
        "lpId": "lp-1010e681dc790aab5041000y",
        "ipRanges": [
            {
                "ipRange": "0.0.0.0/0",
                "protocol": "IPV4",
                "loginPolicyId": "1"
            }
        ],
        "default": "true",
        "ownerOrganizationId": "1",
        "enable": "true",
        "name": "testNew",
        "id": "1",
        "organizationVisibility": "organizationVisibility.global",
        "cuserId": "admin"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.3.5.5. GetLoginPolicyById

Queries the information of a logon policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetLoginPolicyById	The operation that you want to perform. Set the value to GetLoginPolicyById.
Id	Integer	Yes	1	The ID of the logon policy.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
cuserId	String	admin	The user who created the logon policy.
default	Boolean	true	Indicates whether the logon policy is the default one.
enable	Boolean	true	Indicates whether the logon policy is valid.
id	Integer	1	The ID of the logon policy.
ipRanges	Array of ipRange		The list of CIDR blocks.
ipRange	String	0.0.0.0/0	The CIDR block.
loginPolicyId	Integer	1	The ID of the logon policy.
protocol	String	IPV4	The protocol.
lpId	String	111	The ID of the logon policy.
muserId	String	admin	The user who modified the logon policy.
name	String	defaultLoginPolicy.name	The name of the logon policy.

Parameter	Type	Example	Description
organizationVisibility	String	organizationVisibility.global	The sharing scope of the logon policy. Valid values: • organizationVisibility.global: The logon policy is globally shared. • organizationVisibility.organization: The logon policy is shared within the same organization. • organizationVisibility.orgAndSubOrgs: The logon policy is shared to subordinate organizations.
ownerOrganizationId	Integer	1	The ID of the organization.
rule	String	ALLOW	The rule of the logon policy. Valid values: Allow and Deny.
timeRanges	Array of timeRange		The list of time ranges.
endTime	String	24:00	The end of the time range for the query.
loginPolicyId	Integer	1	The ID of the logon policy.
startTime	String	00:00	The beginning of the time range for the query.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetLoginPolicyById
&Id=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <ipRanges>
        <ipRange>0.0.0.0/0</ipRange>
        <protocol>IPV4</protocol>
        <loginPolicyId>1</loginPolicyId>
    </ipRanges>
    <muserId>admin</muserId>
    <default>true</default>
    <ownerOrganizationId>1</ownerOrganizationId>
    <timeRanges>
        <startTime>00:00</startTime>
        <loginPolicyId>1</loginPolicyId>
        <endTime>24:00</endTime>
    </timeRanges>
    <enable>true</enable>
    <name>defaultLoginPolicy.name</name>
    <rule>ALLOW</rule>
    <id>1</id>
    <organizationVisibility>organizationVisibility.global</organizationVisibility>
    <lpId>111</lpId>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "ipRanges": [
            {
                "ipRange": "0.0.0.0/0",
                "protocol": "IPV4",
                "loginPolicyId": "1"
            }
        ],
        "muserId": "admin",
        "default": "true",
        "ownerOrganizationId": "1",
        "timeRanges": [
            {
                "startTime": "00:00",
                "loginPolicyId": "1",
                "endTime": "24:00"
            }
        ],
        "enable": "true",
        "name": "defaultLoginPolicy.name",
        "rule": "ALLOW",
        "id": "1",
        "organizationVisibility": "organizationVisibility.global",
        "lpId": "111",
        "cuserId": "admin"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.4. Operations

1.1.2.4.1. CreateQuota

You can call this operation to create a quota.

- ECS

```
    {"productName":"ECS",
    "quotaBody":{"totalCpu":100,"totalMem":100,"totalGpu":100,
    "totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}}
```

- OSS

```
{"productName":"OSS",
    "quotaBody":{"totalAmount":100}}
```

- VPC

```
 {"productName":"VPC",
    "quotaBody":{"totalVPC":100}}
```

- ApsaraDB RDS

```
 {"productName":"RDS",
    "quotaBody":{"totalCpu":100,"totalMem":100,"totalDisk":100}}
```

- SLB

```
{"productName":"SLB",
    "quotaBody":{"totalVipInternal":100,"totalVipPublic":100}}
```

- MaxCompute (ODPS)

```
{"productName":"ODPS",
    "quotaBody":{"totalCu":100,"totalDisk":100}}
```

- EIP

```
{"productName":"EIP",
    "quotaBody":{"totalEIP":100}}
```

- AnalyticDB for MySQL (ADB)

```
  {"productName": "ADB",
       "quotaBody":{"totalCpu": 100, "totalMem": 100, "totalDisk":100}}
```

- AnalyticDB for PostgreSQL (GPDB)

```
{"productName": "GPDB",
  "quotaBody":{"totalCpu": 100, "totalMem": 100, "totalDisk":100}}
```

- KVStore for Redis (R-kvstore)

```
 {"productName": "R-kvstore",       "quotaBody":{"totalMem": 100}}
```

- PolarDB-X (DRDS)

```
 {"productName": "DRDS",
       "quotaBody":{"totalCpu": 100}}
```

- Tablestore (OTS)

```
{"productName": "OTS",
   "quotaBody":{"totalDisk": 100}}
```

- Apsara File Storage NAS

```
{"productName": "NAS",
     "quotaBody":{"totalDisk": 100}}
```

- ApsaraDB for MongoDB (DDS)

```
{"productName": "DDS",
      "quotaBody":{"totalCpu": 100, "totalMem": 100, "totalDisk":100}}
```

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateQuota	The operation that you want to perform. Set the value to CreateQuota.
ProductName	String	Yes	ECS	The name of the service. Valid values: ECS, OSS, VPC, RDS, SLB, ODPS, EIP, ADB, GPDB, R-kvstore, DRDS, OTS, NAS, and DDS.

Parameter	Type	Required	Example	Description
QuotaBody	Json	Yes	{"totalCpu":100,"totalMem":100,"totalGpu":100,"totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}	The parameters of the quota to update. The parameters vary with the specific service. ECS: {"totalCpu":100,"totalMem":100,"totalGpu":100,"totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100} OSS: {"totalAmount":100} VPC: {"totalVPC":100} RDS: {"totalCpu":100,"totalMem":100,"totalDisk":100} SLB: {"totalVipInternal":100,"totalVipPublic":100} ODPS: {"totalCu":100,"totalDisk":100} EIP: {"totalEIP":100}
QuotaType	String	Yes	organization	Valid values: **organization** and **resourceGroup**.
QuotaTypeId	Integer	Yes	1	The ID of the quota type. Specify an organization ID when the QuotaType parameter is set to organization. Specify a resource set ID when the QuotaType parameter is set to resourceGroup.
RegionName	String	Yes	cn-******-****-d01	The region name.
RequestId	String	No	d0c6ed24-45af-4703-866f-5103302b9a72	The ID of the request.
ClusterName	String	No	""	The name of the cluster. This reserved parameter is optional and can be left empty.

Parameter	Type	Required	Example	Description
TargetType	String	No	MySQL	To create a quota for ApsaraDB RDS, specify the name of the engine. Valid values: MySQL and SQLServer. This parameter is optional and can be left empty for other services.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The time consumed by the operation.
data	Struct		The response.
allocateVPC	Integer	1	The number of allocated virtual private clouds (VPCs).
cluster	String	cn-qingdao-env17-d01	The cluster.
ctime	Float	1608519825999	The creation time.
dtFlag	Boolean	false	The DTCenter flag.
id	Integer	1	The ID of the primary key.
quotaType	String	organization	The type of the quota.
quotaTypeId	Integer	1	The ID of the quota.
region	String	cn-qingdao-env17-d01	The region.
targetType	String	mysql	The type of the cluster.
totalVPC	Integer	10	The total number of VPCs.

Parameter	Type	Example	Description
usedVPC	Integer	1	The number of used VPCs.
message	String	200	The message.
pureListData	Boolean	false	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	111	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateQuota
&ProductName=ECS
&QuotaBody={"totalCpu":100,"totalMem":100,"totalGpu":100, "totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}
&QuotaType=organization
&QuotaTypeId=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <quotaType>organization</quotaType>
    <cluster>cn-qingdao-env17-d01</cluster>
    <totalVPC>10</totalVPC>
    <dtFlag>false</dtFlag>
    <quotaTypeId>1</quotaTypeId>
    <usedVPC>1</usedVPC>
    <ctime>1608519825999</ctime>
    <allocateVPC>1</allocateVPC>
    <targetType>mysql</targetType>
    <id>1</id>
    <region>cn-qingdao-env17-d01</region>
</data>
<success>true</success>
<requestId>111</requestId>
<pureListData>false</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "quotaType": "organization",
        "cluster": "cn-qingdao-env17-d01",
        "totalVPC": "10",
        "dtFlag": "false",
        "quotaTypeId": "1",
        "usedVPC": "1",
        "ctime": "1608519825999",
        "allocateVPC": "1",
        "targetType": "mysql",
        "id": "1",
        "region": "cn-qingdao-env17-d01"
    },
    "success": "true",
    "requestId": "111",
    "pureListData": "false",
    "message": "200"
}
```

1.1.2.4.2. DescribeGpdbModifiableInstanceType

You can call this operation to query the AnalyticDB for PostgreSQL instance types that can be upgraded or downgraded.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeGpdbModifiableInstanceType	The operation that you want to perform. Set the value to DescribeGpdbModifiableInstanceType.
instanceId	String	Yes	sdfsdfsdfsfdsdf	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
data	Struct		The collection of results.
result	Array of dataItem		The collection of results.
baseVersion	String	3.13	The version of the instance type.
cpu	String	1	The number of vCPUs.
engineVersion	String	5.6	The engine version of the instance.
gmtCreate	String	2020-12-23 19:08:15	The creation time.
gmtModified	String	2020-12-23 19:08:15	The modification time.
label	String	""	Indicates whether the field is internationalized. Valid values: true and false.
memory	String	4	The memory size.
node	String	""	The node.
regionId	String	cn-qingdao-env66-d01	The ID of the region.
resourceType	String	GDB	The resource type.

Parameter	Type	Example	Description
specFrom	String	system	The source of the instance type.
specification	String	gdb.r.13xlarge	The instance type.
status	String	Available	Indicates whether the instance type is available.
storage	String	20	The storage.
status	Integer	200	The returned status code.
success	String	true	The success code.
host	String	""	The host address.
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeGpdbModifiableInstanceType
&instanceId=sdfsdfsdfsfdsdf
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <result>
        <engineVersion>5.6</engineVersion>
        <gmtModified>2020-12-23 19:08:15</gmtModified>
        <memory>4</memory>
        <baseVersion>3.13</baseVersion>
        <cpu>1</cpu>
        <specification>gdb.r.13xlarge</specification>
        <specFrom>system</specFrom>
        <storage>20</storage>
        <label>""</label>
        <gmtCreate>2020-12-23 19:08:15</gmtCreate>
        <node>""</node>
        <regionId>cn-qingdao-env66-d01</regionId>
        <status>Available</status>
        <resourceType>GDB</resourceType>
    </result>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "result": [
            {
                "engineVersion": "5.6",
                "gmtModified": "2020-12-23 19:08:15",
                "memory": "4",
                "baseVersion": "3.13",
                "cpu": "1",
                "specification": "gdb.r.13xlarge",
                "specFrom": "system",
                "storage": "20",
                "label": """,
                "gmtCreate": "2020-12-23 19:08:15",
                "node": """,
                "regionId": "cn-qingdao-env66-d01",
                "status": "Available",
                "resourceType": "GDB"
            }
        ],
        "success": "true",
        "status": "200"
    },
    "host": """,
    "status": "200"
}
```

1.1.2.4.3. UpdateQuota

You can call this operation to update a quota.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateQuota	The operation that you want to perform. Set the value to UpdateQuota.
ProductName	String	Yes	ECS	The name of the service. Valid values: **ECS**, **OSS**, **VPC**, **RDS**, **SLB**, **ODPS**, and **EIP**.

QuotaBody	Json	Yes	{"totalCpu":100,"totalMem":100,"totalGpu":100,"totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}	The parameters of the quota to update. The parameters vary with the specific service.
				`ECS: {"totalCpu":100,"totalMem":100,"totalGpu":100,"totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}`
				`OSS: {"totalAmount":100}`
				`VPC: {"totalVPC":100}`
				`RDS: {"totalCpu":100,"totalMem":100,"totalDisk":100}`
				`SLB: {"totalVipInternal":100,"totalVipPublic":100}`
				`ODPS: {"totalCu":100,"totalDisk":100}`
				`EIP: {"totalEIP":100}`

QuotaType	String	Yes	organization	The type of the quota. Valid values: **organization** and **resourceGroup**.
QuotaTypeId	Integer	Yes	1	The ID of the quota type. Specify an organization ID when the QuotaType parameter is set to organization. Specify a resource set ID when the QuotaType parameter is set to resourceGroup.

Parameter	Type	Required	Example	Description
RegionName	String	Yes	cn-*******-****-d01	The region name.
RequestId	String	No	84319b92-835e-4aeb-9190-0c12c9******	The ID of the request.
ClusterName	String	No	TEST	The name of the cluster. This reserved parameter is optional and can be left empty.
TargetType	String	No	MySQL	如果为RDS产品则输入对应引擎的名称，本版本支持MySQL和SQLServer。对于其他产品则可不填或者传空字符串。

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The time consumed by the operation.
data	Struct		The response.
allocateVPC	Integer	1	The number of allocated virtual private clouds (VPCs).
cluster	String	cn-qingdao-env17-d01	The cluster.
ctime	Float	1608519825999	The creation time.
dtFlag	Boolean	false	The DTCenter flag.
id	Integer	1	The ID of the primary key.
quotaType	String	organization	The type of the quota.
quotaTypeId	Integer	1	The ID of the quota.

Parameter	Type	Example	Description
region	String	cn-qingdao-env17-d01	The region.
targetType	String	mysql	The type of the cluster.
totalVPC	Integer	10	The total number of VPCs.
usedVPC	Integer	1	The number of used VPCs.
message	String	200	The message.
pureListData	Boolean	false	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	111	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UpdateQuota
&ProductName=ECS
&QuotaBody={"totalCpu":100,"totalMem":100,"totalGpu":100, "totalDisk_cloud_ssd":100,"totalDisk_cloud_efficiency":100}
&QuotaType=organization
&QuotaTypeId=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <quotaType>organization</quotaType>
    <cluster>cn-qingdao-env17-d01</cluster>
    <totalVPC>10</totalVPC>
    <dtFlag>false</dtFlag>
    <quotaTypeId>1</quotaTypeId>
    <usedVPC>1</usedVPC>
    <ctime>1608519825999</ctime>
    <allocateVPC>1</allocateVPC>
    <targetType>mysql</targetType>
    <id>1</id>
    <region>cn-qingdao-env17-d01</region>
</data>
<success>true</success>
<requestId>111</requestId>
<pureListData>false</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "quotaType": "organization",
        "cluster": "cn-qingdao-env17-d01",
        "totalVPC": "10",
        "dtFlag": "false",
        "quotaTypeId": "1",
        "usedVPC": "1",
        "ctime": "1608519825999",
        "allocateVPC": "1",
        "targetType": "mysql",
        "id": "1",
        "region": "cn-qingdao-env17-d01"
    },
    "success": "true",
    "requestId": "111",
    "pureListData": "false",
    "message": "200"
}
```

1.1.2.4.4. DeleteQuota

You can call this operation to delete a quota.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteQuota	The operation that you want to perform. Set the value to DeleteQuota.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The time consumed by the operation.
message	String	200	The message.
pureListData	Boolean	false	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	111	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteQuota
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<requestId>111</requestId>
<pureListData>false</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "requestId": "111",
    "pureListData": "false",
    "message": "200"
}
```


1.1.2.4.5. GetQuota

You can call this operation to query a quota.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetQuota	The operation that you want to perform. Set the value to GetQuota.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The time consumed by the operation.
data	Struct		The response.
allocateAmount	Integer	1	The number of allocated quotas.
cluster	String	cn-qingdao-env17-d01	The cluster.
ctime	Float	1608519825999	The creation time.
cuserId	String	admin	The creator.
dtFlag	Boolean	false	The DTCenter flag.
id	Integer	1	The ID of the primary key.

Parameter	Type	Example	Description
muserId	String	admin	The modifier.
quotaType	String	organization	The type of the quota.
quotaTypeId	Integer	1	The ID of the quota.
region	String	cn-qingdao-env17-d01	The region.
targetType	String	mysql	The type of the cluster.
totalAmount	Integer	10	The total number of quotas.
usedAmount	Integer	1	The number of used quotas.
message	String	200	The message.
pureListData	Boolean	false	Indicates whether only data is returned.
redirect	Boolean	false	Indicates whether redirections are performed.
requestId	String	111	The ID of the request.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=GetQuota
&ProductName=ECS
&QuotaType=organization
&QuotaTypeId=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <muserId>admin</muserId>
    <cluster>cn-qingdao-env17-d01</cluster>
    <quotaTypeId>1</quotaTypeId>
    <usedAmount>1</usedAmount>
    <allocateAmount>1</allocateAmount>
    <targetType>mysql</targetType>
    <totalAmount>10</totalAmount>
    <quotaType>organization</quotaType>
    <dtFlag>false</dtFlag>
    <ctime>1608519825999</ctime>
    <id>1</id>
    <region>cn-qingdao-env17-d01</region>
    <cuserId>admin</cuserId>
</data>
<success>true</success>
<requestId>111</requestId>
<pureListData>false</pureListData>
<message>200</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "muserId": "admin",
        "cluster": "cn-qingdao-env17-d01",
        "quotaTypeId": "1",
        "usedAmount": "1",
        "allocateAmount": "1",
        "targetType": "mysql",
        "totalAmount": "10",
        "quotaType": "organization",
        "dtFlag": "false",
        "ctime": "1608519825999",
        "id": "1",
        "region": "cn-qingdao-env17-d01",
        "cuserId": "admin"
    },
    "success": "true",
    "requestId": "111",
    "pureListData": "false",
    "message": "200"
}
```

1.1.2.4.6. MeteringQuery

You can call this operation to query the metering data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	MeteringQuery	The operation that you want to perform. Set the value to MeteringQuery.
startTime	String	Yes	2019-10-10T00:00:00Z	The start of the time range for the query. The time must be in UTC.
endTime	String	Yes	2019-10-10T01:00:00Z	The end of the time range for the query. The time must be in UTC.
orgId	String	Yes	1	The ID of the organization.
pageSize	Integer	No	500	The number of entries to return on each page. Maximum value: 1000.
productName	String	Yes	ECS	The name of the service. Valid values: ECS, OSS, RDS, SLB, EIP, and VPC.
isParentId	Integer	Yes	0	A value of 1 specifies that the metering data of subordinate organizations under this organization is returned. If you do not specify this parameter or set the parameter to a value other than 1, only the metering data of this organization is returned.
resourceGId	String	No	test	The metering data of the specified resource set. By fault, if this parameter is empty or not specified, the metering data of all the resource sets in the specified organization is queried. **Note** If refined query is not required, we recommend that you do not specify the resourceGId, region, and insId parameters. You can query all the metering data of the specified organization to improve efficiency.

Parameter	Type	Required	Example	Description
region	String	No	test	The metering data of the specified cluster. **Note** If refined query is not required, we recommend that you do not specify the resourceGId, region, and insId parameters. You can query all the metering data of the specified organization to improve efficiency.
insId	String	No	test	The metering data of the specified instance. **Note** If refined query is not required, we recommend that you do not specify the resourceGId, region, and insId parameters. You can query all the metering data of the specified organization to improve efficiency.
token	String	No	test	The token returned as an offset when the data volume to be queried is greater than the value of the pageSize parameter. You can query the data of the next page after you enter the token for the next request. You can ignore this parameter or enter an empty string for the first query.

Response parameters

Parameter	Type	Example	Description
code	String	200	The returned status code.
cost	Integer	1000	The time consumed by the operation.
message	String	success	The returned information.
requestId	String	sddsdsd	The ID of the request.

Parameter	Type	Example	Description
success	Normal	true	Indicates whether the call was successful.
token	String	{"InsId":"i-9fx013f0ueoh5fzc8yww","Pos":"ECS_0000000003_2000-01-01T01:00:00Z","ResourceGId":"2","RegionId":"cn-qingdao-env-d01"}	The token used to query data by page. You can query the data of the next page after you enter the token for the next request.
total	Integer	100	The amount of data returned for this query.
data	String		The response.
Pos	String	ECS_0000000003_2000-01-01T01:00:00Z	The primary key of the metering data. The primary key consists of the service name, organization ID, and start time.
OrgName	String	test	The name of the organization.
ResourceGId	Integer	test	The ID of the resource set.
ResourceGName	String	test	The name of the resource set.
InsId	String	i-h5i05vhigf256qxqmg4h	The ID of the instance.
RegionId	String	cn-qingdao-env3b-d02	The ID of the region.
StartTime	String	2019-12-16 06:00:00	The start time of the metering data.
EndTime	String	2019-12-16 07:00:00	The end time of the metering data.

Examples

- Sample requests

```
http(s)://[Endpoint]/? Action=MeteringQuery
&startTime=2019-10-10T00:00:00Z
&endTime=2019-10-10T01:00:00Z
&orgId=1
&pageSize=500
&productName=ECS
&isParentId=0
&<Common request parameters>
```

- Sample success responses in JSON format

```
{
   "code": "200",
   "cost": 1104,
   "data": [
       {
           "Status": "Pending",
           "EndTime": "2019-12-16T07:00:00Z",
           "Memory": 8192,
           "StartTime": "2019-12-16T06:00:00Z",
           "Cpu": 4,
           "ResourceGId": "2",
           "OrgName": "katy",
           "GPUAmount": 0,
           "InstanceNetworkType": "vpc",
           "InstanceName": "",
           "InsId": "i-h5i05vhigf256qxqmg4h",
           "Pos": "ECS_0000000003_2019-12-16T06:00:00Z",
           "RegionId": "cn-qingdao-env3b-d02",
           "ResourceGName": "Default resource group",
           "InstanceType": "ecs.sn1ne.xlarge"
       },
       {
           "Status": "Stopped",
           "EndTime": "2019-12-16T07:00:00Z",
           "Memory": 65536,
           "StartTime": "2019-12-16T06:00:00Z",
           "Cpu": 8,
           "ResourceGId": "2",
           "OrgName": "katy",
           "GPUAmount": 0,
           "InstanceNetworkType": "vpc",
           "InstanceName": "master-02-k8s-for-cs-c7bf8128e65b84e1e95e650cb56dd****",
           "InsId": "i-h5i05vhigf27annjmgbz",
           "Pos": "ECS_0000000003_2019-12-16T06:00:00Z",
           "RegionId": "cn-qingdao-env3b-d02",
           "ResourceGName": "Default resource group",
           "InstanceType": "ecs.se1.2xlarge"
       },
       {
           "Status": "Running",
           "EndTime": "2019-12-16T07:00:00Z",
           "Memory": 65536,
           "StartTime": "2019-12-16T06:00:00Z",
```

```
            "Cpu": 8,
            "ResourceGId": "2",
            "OrgName": "katy",
            "GPUAmount": 0,
            "InstanceNetworkType": "vpc",
            "InstanceName": "worker-k8s-for-cs-c7bf8128e65b84e1e95e650cb56dd****",
            "InsId": "i-h5i05vhigf27atkmym9f",
            "Pos": "ECS_0000000003_2019-12-16T06:00:00Z",
            "RegionId": "cn-qingdao-env3b-d02",
            "ResourceGName": "Default resource group",
            "InstanceType": "ecs.se1.2xlarge"
        }
    ],
    "message": "success",
    "pageNumber": 1,
    "redirect": false,
    "requestId": "0a0416001576560260744159 1d0217",
    "size": 10,
    "success": true,
    "token": "xxxx",
    "total": 1000,
    "asapiRequestId": "47b3e68f-a87d-4222-8263-e8f6a7801e09"
}
```


1.1.2.4.7. SelectCommonSpec

You can call this operation to query the specifications of a service by condition.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SelectCommonSpec	The operation that you want to perform. Set the value to SelectCommonSpec.

Response parameters

Parameter	Type	Example	Description
data	Struct		The dataset.
result	Array of dataItem		The collection of results.
baseVersion	String	3.13	The version of the specifications.
gmtCreate	String	2019-10-27 17:47:27	The creation time of the specifications.

Parameter	Type	Example	Description
gmtModified	String	2019-10-27 17:47:27	The modification time of the specifications.
pageOrder	String	1	The page order.
pageSize	Integer	5	The number of entries returned per page.
pageSort	String	null	The sorting of pages.
pageStart	Integer	1	The number of the page to query. Start from page 1.
regionId	String	cn-qingdao-env66-d01	The ID of the region.
resourceType	String	RDS	The resource type.
specFrom	String	system	The source of the specifications.
status	String	Available	Indicates whether the specifications are available.
status	Integer	200	The returned status code.
success	String	true	The success code.
host	String	""	The host address.
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SelectCommonSpec
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <result>
        <gmtModified>2019-10-27 17:47:27</gmtModified>
        <pageOrder>1</pageOrder>
        <pageSort>null</pageSort>
        <regionId>cn-qingdao-env66-d01</regionId>
        <baseVersion>3.13</baseVersion>
        <pageStart>1</pageStart>
        <pageSize>5</pageSize>
        <specFrom>system</specFrom>
        <gmtCreate>2019-10-27 17:47:27</gmtCreate>
        <status>Available</status>
        <resourceType>RDS</resourceType>
    </result>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "result": [
            {
                "gmtModified": "2019-10-27 17:47:27",
                "pageOrder": "1",
                "pageSort": "null",
                "regionId": "cn-qingdao-env66-d01",
                "baseVersion": "3.13",
                "pageStart": "1",
                "pageSize": "5",
                "specFrom": "system",
                "gmtCreate": "2019-10-27 17:47:27",
                "status": "Available",
                "resourceType": "RDS"
            }
        ],
        "success": "true",
        "status": "200"
    },
    "host": "\"\"",
    "status": "200"
}
```

1.1.2.4.8. AddCommonSpec

You can call this operation to add custom specifications of a service.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddCommonSpec	The operation that you want to perform. Set the value to AddCommonSpec.
specName	String	Yes	Enhanced Enterprise Edition	The Chinese name of the specifications.
status	String	Yes	Available	The status.

Response parameters

Parameter	Type	Example	Description
data	Struct		The returned dataset.
success	Boolean	true	The success code.
validationInfo	String	""	The verification code.
code	String	200	The HTTP status code.
httpOk	Boolean	true	The returned status code.
ip	String	""	The IP address.
message	String	success	The error message.
requestId	String	0a1ec3c216087759426241251d02bd	The ID of the request.
success	Boolean	true	The success code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=AddCommonSpec
&resourceType=RDS
&specName=Enhanced Enterprise Edition
&status=Available
&<Common request parameters>
```

Sample success responses

`XML` format

```
<code>200</code>
<data>
    <success>true</success>
    <validationInfo>""</validationInfo>
</data>
<httpOk>true</httpOk>
<requestId>0a1ec3c216087759426241251d02bd</requestId>
<success>true</success>
<ip>""</ip>
<message>success</message>
```

`JSON` format

```
{
    "code": "200",
    "data": {
        "success": "true",
        "validationInfo": """
    },
    "httpOk": "true",
    "requestId": "0a1ec3c216087759426241251d02bd",
    "success": "true",
    "ip": """,
    "message": "success"
}
```

1.1.2.4.9. UpdateCommonSpecStatus

You can call this operation to enable or disable specifications.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateCommonSpecStatus	The operation that you want to perform. Set the value to UpdateCommonSpecStatus.
ids	String	Yes	1	The IDs of the specifications.

Parameter	Type	Required	Example	Description
status	String	Yes	Unavailable	The status. Valid values: **Available** and **Unavailable**.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
data	Integer	200	The collection of data.
message	String	success	The message.
success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UpdateCommonSpecStatus
&ids=1
&status=Unavailable
&<Common request parameters>
```

Sample success responses

`XML` format

```
<code>200</code>
<data>200</data>
<success>true</success>
<message>success</message>
```

`JSON` format

```
{
    "code": "200",
    "data": "200",
    "success": "true",
    "message": "success"
}
```

1.1.2.5. Cloud services

1.1.2.5.1. DescribeModifiableInstanceType

You can call this operation to query the Elastic Compute Service (ECS) instance types that can be upgraded or downgraded.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeModifiableInstanceType	The operation that you want to perform. Set the value to DescribeModifiableInstanceType.
destinationResource	String	Yes	sfdsf	Set the value to instanceType.
instanceId	String	Yes	sfdsfsfdsfsfdsf	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
data	Struct		The collection of results.
result	Array of dataItem		The collection of data.
baselineCredit	Integer	1	The baseline vCPU computing performance (overall computing performance of all vCPUs) of the t5 or t6 burstable instance family.
cpuCoreCount	Integer	1	The number of vCPUs.
eniPrivateIpAddressQuantity	Integer	2	The maximum number of private IP addresses per elastic network interface (ENI).
eniQuantity	Integer	2	The maximum number of ENIs that can be bound to an instance.
gPUAmount	Integer	0	The number of GPUs.
gPUSpec	String	""	The GPU specifications.

Parameter	Type	Example	Description
initialCredit	Integer	1	The initial vCPU credits of the t5 or t6 burstable instance family.
instanceBandwidthRx	Integer	1	The maximum inbound internal bandwidth. Unit: Kbit/s.
instanceBandwidthTx	Integer	1	The maximum outbound internal bandwidth. Unit: Kbit/s.
instanceFamilyLevel	String	EnterpriseLevel	The level of the instance family.
instancePpsRx	Long	1	The inbound packet forwarding rate over the internal network. Unit: pps.
instancePpsTx	Long	1	The outbound packet forwarding rate over the internal network. Unit: pps.
instanceTypeFamily	String	ecs.sn2.large	The instance family.
instanceTypeId	String	ecs.sn2.large	The ID of the instance type.
localStorageAmount	Integer	1	The number of local disks attached per instance.
localStorageCapacity	Long	2000	The capacity of each local disk attached per instance. Unit: GiB.
localStorageCategory	String	2000	The capacity of each local disk attached per instance. Unit: GiB.
memorySize	Integer	4	The amount of memory. Unit: GiB.
status	Integer	200	The returned status code.
success	String	true	The success code.
host	String	""	The host address.

Parameter	Type	Example	Description
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeModifiableInstanceType
&destinationResource=sfdsf
&instanceId=sfdsfsfdsfsfdsf
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <result>
        <instancePpsTx>1</instancePpsTx>
        <instanceTypeFamily>ecs.sn2.large</instanceTypeFamily>
        <localStorageCapacity>2000</localStorageCapacity>
        <instanceTypeId>ecs.sn2.large</instanceTypeId>
        <instancePpsRx>1</instancePpsRx>
        <cpuCoreCount>1</cpuCoreCount>
        <initialCredit>1</initialCredit>
        <localStorageAmount>1</localStorageAmount>
        <gPUAmount>0</gPUAmount>
        <memorySize>4</memorySize>
        <instanceFamilyLevel>EnterpriseLevel</instanceFamilyLevel>
        <eniQuantity>2</eniQuantity>
        <instanceBandwidthRx>1</instanceBandwidthRx>
        <eniPrivateIpAddressQuantity>2</eniPrivateIpAddressQuantity>
        <localStorageCategory>2000</localStorageCategory>
        <instanceBandwidthTx>1</instanceBandwidthTx>
        <baselineCredit>1</baselineCredit>
        <gPUSpec>""</gPUSpec>
    </result>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "result": [
            {
                "instancePpsTx": "1",
                "instanceTypeFamily": "ecs.sn2.large",
                "localStorageCapacity": "2000",
                "instanceTypeId": "ecs.sn2.large",
                "instancePpsRx": "1",
                "cpuCoreCount": "1",
                "initialCredit": "1",
                "localStorageAmount": "1",
                "gPUAmount": "0",
                "memorySize": "4",
                "instanceFamilyLevel": "EnterpriseLevel",
                "eniQuantity": "2",
                "instanceBandwidthRx": "1",
                "eniPrivateIpAddressQuantity": "2",
                "localStorageCategory": "2000",
                "instanceBandwidthTx": "1",
                "baselineCredit": "1",
                "gPUSpec": """
            }
        ],
        "success": "true",
        "status": "200"
    },
    "host": "\"\"",
    "status": "200"
}
```


1.1.2.5.2. DescribeSeriesIdFamilies

You can call this operation to query instance families.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSeriesIdFamilies	The operation that you want to perform. Set the value to DescribeSeriesIdFamilies.

Response parameters

Parameter	Type	Example	Description
data	Struct		The collection of results.

Parameter	Type	Example	Description
result	Array of dataItem		The collection of data.
baseVersion	String	3.13	The version of the instance type.
gmtCreate	String	2019-10-15 17:47:27	The creation time of the instance type.
gmtModified	String	2019-10-15 17:47:27	The modification time of the instance type.
pageOrder	String	null	The order of instance types.
pageSize	Integer	5	The number of entries returned per page.
pageSort	String	null	The sorting of pages.
pageStart	Integer	1	The number of the page to query. Start from page 1.
regionId	String	cn-qingdao-env66-d01	The region ID.
resourceType	String	RDS	The resource type.
seriesId	String	drds.sn2.8c32g	The ID of the edition.
seriesName	String	Standard Edition	The name of the edition.
seriesNameLabel	String	Standard Edition	The display name of the edition.
specFrom	String	systen	The source of the instance type.
status	String	Available	The status.
status	Integer	200	The returned status code.
success	String	true	The success code.

Parameter	Type	Example	Description
host	String	""	The host address.
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeSeriesIdFamilies
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <result>
        <gmtModified>2019-10-15 17:47:27</gmtModified>
        <baseVersion>3.13</baseVersion>
        <seriesName>Standard Edition</seriesName>
        <pageSize>5</pageSize>
        <specFrom>systen</specFrom>
        <gmtCreate>2019-10-15 17:47:27</gmtCreate>
        <seriesId>drds.sn2.8c32g</seriesId>
        <pageOrder>null</pageOrder>
        <pageSort>null</pageSort>
        <regionId>cn-qingdao-env66-d01</regionId>
        <pageStart>1</pageStart>
        <seriesNameLabel>Standard Edition</seriesNameLabel>
        <status>Available</status>
        <resourceType>RDS</resourceType>
    </result>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "result": [
            {
                "gmtModified": "2019-10-15 17:47:27",
                "baseVersion": "3.13",
                "seriesName": "Standard Edition",
                "pageSize": "5",
                "specFrom": "systen",
                "gmtCreate": "2019-10-15 17:47:27",
                "seriesId": "drds.sn2.8c32g",
                "pageOrder": "null",
                "pageSort": "null",
                "regionId": "cn-qingdao-env66-d01",
                "pageStart": "1",
                "seriesNameLabel": "Standard Edition",
                "status": "Available",
                "resourceType": "RDS"
            }
        ],
        "success": "true",
        "status": "200"
    },
    "host": """,
    "status": "200"
}
```


1.1.2.5.3. GroupCommonSpec

You can call this operation to query the valid values of the specifications-specific fields.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GroupCommonSpec	The operation that you want to perform. Set the value to GroupCommonSpec.
groupFiled	String	Yes	storageType	The field for which to query valid values.
resourceType	String	Yes	RDS	The resource type.
label	String	No	""	The tag.

Response parameters

Parameter	Type	Example	Description
data	Struct		The dataset.
data	List	[{ "storageType":"AutoTest_Wn4MRxEkKK" }, { "storageType":"AutoTest_UZOBAEDvil" }, { "storageType":"AutoTest_8WqAc6rtpp" }, { "storageType":"AutoTest_aCPiv2nIh3" }, { "storageType":"Standard" }, { "storageType":"1" }]	The collection of results.
status	Integer	200	The returned status code.
success	String	true	The success code.
host	String	""	The host address.
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=GroupCommonSpec
&groupFiled=storageType
&resourceType=RDS
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <data>[         {             "storageType":"AutoTest_Wn4MRxEkKK"         },         {
"storageType":"AutoTest_UZOBAEDvil"         },         {             "storageType":"AutoTes
t_8WqAc6rtpp"         },         {             "storageType":"AutoTest_aCPiv2nIh3"
},         {             "storageType":"Standard"         },         {             "storage
Type":"1"         }     ]</data>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "data": "[         {             \"storageType\":\"AutoTest_Wn4MRxEkKK\"         },
{             \"storageType\":\"AutoTest_UZOBAEDvil\"         },         {             \"st
orageType\":\"AutoTest_8WqAc6rtpp\"         },         {             \"storageType\":\"Auto
Test_aCPiv2nIh3\"         },         {             \"storageType\":\"Standard\"         },
{             \"storageType\":\"1\"         }     ]",
        "success": "true",
        "status": "200"
    },
    "host": "\"\"",
    "status": "200"
}
```

1.1.2.5.4. GetRegionsByProduct

You can call this operation to query the region list of a service.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetRegionsByProduct	The operation that you want to perform. Set the value to GetRegionsByProduct.
ProductName	String	Yes	ecs	The name of the service.
Organization	String	No	1	The ID of the organization.

Response parameters

Parameter	Type	Example	Description
body	Struct		The response body.
RegionList	Array of Region		The list of regions.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RegionType	String	center	The type of the region. Valid values: center and cell.
code	Integer	200	The returned status code.
successResponse	Boolean	true	Indicates whether the response was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=GetRegionsByProduct
&ProductName=ecs
&<Common request parameters>
```

Sample success responses

`XML` format

```
<successResponse>true</successResponse>
<code>200</code>
<body>
    <RegionList>
        <RegionType>center</RegionType>
        <RegionId>cn-qingdao-env17-d01</RegionId>
    </RegionList>
</body>
```

`JSON` format

```
{
    "successResponse": "true",
    "code": "200",
    "body": {
        "RegionList": [
            {
                "RegionType": "center",
                "RegionId": "cn-qingdao-env17-d01"
            }
        ]
    }
}
```

1.1.2.5.5. DescribeInstanceTypeFamilies

You can call this operation to query Elastic Compute Service (ECS) instance families.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceTypeFamilies	The operation that you want to perform. Set the value to DescribeInstanceTypeFamilies.

Response parameters

Parameter	Type	Example	Description
data	Struct		The collection of results.
result	Struct		The collection of data.
instanceTypeFamilies	Array of instanceTypeFamilie		The ECS instance families.
generation	String	""	The code of the instance family.
instanceTypeFamilyId	String	ecs.se1ne	The ID of the instance family.
status	Integer	200	The returned status code.
success	String	true	The returned success code.

Parameter	Type	Example	Description
host	String	""	The host address.
status	Integer	200	The returned status code.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeInstanceTypeFamilies
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data>
    <result>
        <instanceTypeFamilies>
            <generation>""</generation>
            <instanceTypeFamilyId>ecs.se1ne</instanceTypeFamilyId>
        </instanceTypeFamilies>
    </result>
    <success>true</success>
    <status>200</status>
</data>
<host>""</host>
<status>200</status>
```

`JSON` format

```
{
    "data": {
        "result": {
            "instanceTypeFamilies": [
                {
                    "generation": "\"\"",
                    "instanceTypeFamilyId": "ecs.se1ne"
                }
            ]
        },
        "success": "true",
        "status": "200"
    },
    "host": "\"\"",
    "status": "200"
}
```

1.1.2.5.6. GetRegionsByProduct

Queries the region list of a service.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetRegionsByProduct	The operation that you want to perform. Set the value to GetRegionsByProduct.
ProductName	String	Yes	ecs	The name of the service.
Organization	String	No	1	The ID of the organization.

Response parameters

Parameter	Type	Example	Description
body	Struct		The response body.
RegionList	Array of Region		The list of regions.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RegionType	String	center	The type of the region. • center • cell
code	Integer	200	The HTTP status code.
successResponse	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetRegionsByProduct
&ProductName=ecs
&<Common request parameters>
```

Sample success responses

`XML` format

```
<successResponse>true</successResponse>
<code>200</code>
<body>
    <RegionList>
        <RegionType>center</RegionType>
        <RegionId>cn-qingdao-env17-d01</RegionId>
    </RegionList>
</body>
```

`JSON` format

```
{
    "successResponse": "true",
    "code": "200",
    "body": {
        "RegionList": [
            {
                "RegionType": "center",
                "RegionId": "cn-qingdao-env17-d01"
            }
        ]
    }
}
```

1.1.2.6. Configurations

1.1.2.6.1. RemoveLoginPolicyById

Deletes a logon policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveLoginPolicyById	The operation that you want to perform. Set the value to RemoveLoginPolicyById.
Id	Integer	Yes	2	The ID of the logon policy.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.

Parameter	Type	Example	Description
cost	Integer	1000	The amount of time taken to perform the operation.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveLoginPolicyById
&Id=2
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.6.2. GetPasswordPolicy

Queries a password policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetPasswordPolicy	The operation that you want to perform. Set the value to GetPasswordPolicy.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
hardExpiry	Boolean	true	Indicates whether the password expires.
maxLoginAttemps	Integer	5	The maximum number of logon attempts within 1 hour when the password is incorrect.
maxPasswordAge	Integer	90	The validity period of the password. Unit: days. 0 indicates that the password expiration policy is disabled.
minimumPasswordLength	Integer	10	The minimum number of characters in the password.
passwordErrorLockPeriod	Integer	30	The locking period of the password.
passwordErrorTolerancePeriod	Integer	5	The tolerance period of the password when a password error occurs.
passwordReusePrevention	Integer	5	The number of previous passwords that the user is disallowed to reuse. Default value: 0. The default value indicates that the user can reuse previous passwords.

Parameter	Type	Example	Description
requireLowercaseCharacters	Boolean	true	Indicates whether lowercase letters are required.
requireNumbers	Boolean	true	Indicates whether digits are required.
requireSymbols	Boolean	true	Indicates whether special characters are required.
requireUppercaseCharacters	Boolean	true	Indicates whether uppercase letters are required.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetPasswordPolicy
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <passwordErrorTolerancePeriod>5</passwordErrorTolerancePeriod>
    <minimumPasswordLength>10</minimumPasswordLength>
    <requireSymbols>true</requireSymbols>
    <passwordErrorLockPeriod>30</passwordErrorLockPeriod>
    <passwordReusePrevention>5</passwordReusePrevention>
    <maxLoginAttemps>5</maxLoginAttemps>
    <requireLowercaseCharacters>true</requireLowercaseCharacters>
    <hardExpiry>true</hardExpiry>
    <requireNumbers>true</requireNumbers>
    <requireUppercaseCharacters>true</requireUppercaseCharacters>
    <maxPasswordAge>90</maxPasswordAge>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "passwordErrorTolerancePeriod": "5",
        "minimumPasswordLength": "10",
        "requireSymbols": "true",
        "passwordErrorLockPeriod": "30",
        "passwordReusePrevention": "5",
        "maxLoginAttemps": "5",
        "requireLowercaseCharacters": "true",
        "hardExpiry": "true",
        "requireNumbers": "true",
        "requireUppercaseCharacters": "true",
        "maxPasswordAge": "90"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.6.3. ResetPasswordPolicy

Resets a password policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetPasswordPolicy	The operation that you want to perform. Set the value to ResetPasswordPolicy.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
hardExpiry	Boolean	true	Indicates whether the password expires.
maxLoginAttemps	Integer	5	The maximum number of logon attempts within 1 hour when the password is incorrect.
maxPasswordAge	Integer	90	The validity period of the password. Unit: days. 0 indicates that the password expiration policy is disabled.
minimumPasswordLength	Integer	10	The minimum number of characters in the password.
passwordErrorLockPeriod	Integer	30	The locking period of the password.
passwordErrorTolerancePeriod	Integer	5	The tolerance period of the password when a password error occurs.
passwordReusePrevention	Integer	5	The number of previous passwords that the user is disallowed to reuse. The default value is 0, which indicates that the users can reuse previous passwords.
requireLowercaseCharacters	Boolean	true	Indicates whether lowercase letters are required.

Parameter	Type	Example	Description
requireNumbers	Boolean	true	Indicates whether digits are required.
requireSymbols	Boolean	true	Indicates whether special characters are required.
requireUppercaseCharacters	Boolean	true	Indicates whether uppercase letters are required.
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ResetPasswordPolicy
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <passwordErrorTolerancePeriod>5</passwordErrorTolerancePeriod>
    <minimumPasswordLength>10</minimumPasswordLength>
    <requireSymbols>true</requireSymbols>
    <passwordErrorLockPeriod>30</passwordErrorLockPeriod>
    <passwordReusePrevention>5</passwordReusePrevention>
    <maxLoginAttemps>5</maxLoginAttemps>
    <requireLowercaseCharacters>true</requireLowercaseCharacters>
    <hardExpiry>true</hardExpiry>
    <requireNumbers>true</requireNumbers>
    <requireUppercaseCharacters>true</requireUppercaseCharacters>
    <maxPasswordAge>90</maxPasswordAge>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "passwordErrorTolerancePeriod": "5",
        "minimumPasswordLength": "10",
        "requireSymbols": "true",
        "passwordErrorLockPeriod": "30",
        "passwordReusePrevention": "5",
        "maxLoginAttemps": "5",
        "requireLowercaseCharacters": "true",
        "hardExpiry": "true",
        "requireNumbers": "true",
        "requireUppercaseCharacters": "true",
        "maxPasswordAge": "90"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```

1.1.2.6.4. SetPasswordPolicy

Modifies a password policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetPasswordPolicy	The operation that you want to perform. Set the value to SetPasswordPolicy.
HardExpiry	Boolean	No	true	Specifies whether the password expires.
RequireNumbers	Boolean	No	true	Specifies whether digits are required.
RequireSymbols	Boolean	No	true	Specifies whether special characters are required.
RequireLowercaseCharacters	Boolean	No	true	Specifies whether lowercase letters are required.
RequireUppercaseCharacters	Boolean	No	true	Specifies whether uppercase letters are required.
MaxLoginAttemps	Integer	No	5	The maximum number of logon attempts within 1 hour when the password is incorrect.
MaxPasswordAge	Integer	No	90	The validity period of the password. Unit: days. 0 indicates that the password expiration policy is disabled.
MinimumPasswordLength	Integer	No	10	The minimum required number of characters in the password.
PasswordReusePrevention	Integer	No	5	The number of previous passwords that the user is disallowed to reuse. Default value: 0. The default value indicates that the user can reuse previous passwords.

Response parameters

Parameter	Type	Example	Description
code	String	200	The HTTP status code.

Parameter	Type	Example	Description
cost	Integer	1000	The amount of time taken to perform the operation.
data	Struct		The response.
hardExpiry	Boolean	true	Indicates whether the password expires.
maxLoginAttemps	Integer	5	The maximum number of logon attempts within 1 hour when the password is incorrect.
maxPasswordAge	Integer	90	The validity period of the password. Unit: days. 0 indicates that the password expiration policy is disabled.
minimumPasswordLength	Integer	10	The minimum number of characters in the password.
passwordErrorLockPeriod	Integer	30	The locking period of the password.
passwordErrorTolerancePeriod	Integer	5	The tolerance period of the password when a password error occurs.
passwordReusePrevention	Integer	5	The number of previous passwords that the user is disallowed to reuse. Default value: 0. The default value indicates that the user can reuse previous passwords.
requireLowercaseCharacters	Boolean	true	Indicates whether lowercase letters are required.
requireNumbers	Boolean	true	Indicates whether digits are required.
requireSymbols	Boolean	true	Indicates whether special characters are required.
requireUppercaseCharacters	Boolean	true	Indicates whether uppercase letters are required.

Parameter	Type	Example	Description
message	String	success	The error message.
pureListData	Boolean	false	Indicates whether only data is returned and other parameters are not returned.
redirect	Boolean	false	Indicates whether redirections are performed.
success	Boolean	true	Indicates whether the call is successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetPasswordPolicy
&<Common request parameters>
```

Sample success responses

`XML` format

```
<redirect>false</redirect>
<cost>1000</cost>
<code>200</code>
<data>
    <passwordErrorTolerancePeriod>5</passwordErrorTolerancePeriod>
    <minimumPasswordLength>10</minimumPasswordLength>
    <requireSymbols>true</requireSymbols>
    <passwordErrorLockPeriod>30</passwordErrorLockPeriod>
    <passwordReusePrevention>5</passwordReusePrevention>
    <maxLoginAttemps>5</maxLoginAttemps>
    <requireLowercaseCharacters>true</requireLowercaseCharacters>
    <hardExpiry>true</hardExpiry>
    <requireNumbers>true</requireNumbers>
    <requireUppercaseCharacters>true</requireUppercaseCharacters>
    <maxPasswordAge>90</maxPasswordAge>
</data>
<success>true</success>
<pureListData>false</pureListData>
<message>success</message>
```

`JSON` format

```
{
    "redirect": "false",
    "cost": "1000",
    "code": "200",
    "data": {
        "passwordErrorTolerancePeriod": "5",
        "minimumPasswordLength": "10",
        "requireSymbols": "true",
        "passwordErrorLockPeriod": "30",
        "passwordReusePrevention": "5",
        "maxLoginAttemps": "5",
        "requireLowercaseCharacters": "true",
        "hardExpiry": "true",
        "requireNumbers": "true",
        "requireUppercaseCharacters": "true",
        "maxPasswordAge": "90"
    },
    "success": "true",
    "pureListData": "false",
    "message": "success"
}
```


1.1.2.7. Monitoring

1.1.2.7.1. Major metrics for Apsara Stack services

Precautions

- The Sum function is used to measure the total amount of an object during a specific time period. For example, you can measure the total amount of Internet traffic (KB/minute) that goes through an Elastic Compute Service (ECS) instance within a period of 5 minutes.
- You can use API operations to query monitoring data of the last 31 days.
- The Dimensions value is a JSON string. Example: `{"instanceId":"i-23gyb3kkd"}`.

Metrics for ECS whose namespace is acs_ecs_dashboard

Basic metrics

- The following metrics are used to monitor basic ECS properties. You can query monitoring data of these metrics without installing the CloudMonitor agent.
- Set Project to *acs_ecs_dashboard* and the statistical period to 60 seconds. Set Period to an integer multiple of 60.
- Assign the actual instance ID to instanceId in the Dimensions parameter.

Metric	Description	Unit	Dimensions	Statistics
InternetInRate	The inbound bandwidth to the Internet.	bit/s	instanceId	Average, Minimum, and Maximum

Metric	Description	Unit	Dimensions	Statistics
IntranetInRate	The inbound bandwidth to the internal network.	bit/s	instanceId	Average, Minimum, and Maximum
IntranetOutRate	The outbound bandwidth from the internal network.	bit/s	instanceId	Average, Minimum, and Maximum
DiskReadBPS	The number of bytes read from the system disk per second.	Bps	instanceId	Average, Minimum, and Maximum
DiskWriteBPS	The number of bytes written to the system disk per second.	Bps	instanceId	Average, Minimum, and Maximum
DiskReadIOPS	The number of read operations performed on the system disk per second.	Count/Second	instanceId	Average, Minimum, and Maximum
DiskWriteIOPS	The number of write operations performed on the system disk per second.	Count/Second	instanceId	Average, Minimum, and Maximum

Operating system metrics

The minimum period value is 15 seconds.

Metric	Description	Unit	Dimensions	Statistics
cpu_total	The total CPU utilization.	%	instanceId	Average, Minimum, and Maximum
memory_usedutilization	The memory usage.	%	instanceId	Average, Minimum, and Maximum
load_1m	The average system load in the last 1 minute. Windows operating systems do not support this metric.	N/A	instanceId	Average, Minimum, and Maximum

Metric	Description	Unit	Dimensions	Statistics
load_5m	The average system load in the last 5 minutes. Windows operating systems do not support this metric.	N/A	instanceId	Average, Minimum, and Maximum
load_15m	The average system load in the last 15 minutes. Windows operating systems do not support this metric.	N/A	instanceId	Average, Minimum, and Maximum
diskusage_utilization	The disk usage.	%	instanceId and device	Average, Minimum, and Maximum
disk_readbytes	The number of bytes that are read from the specified disk per second.	byte/s	instanceId and device	Average, Minimum, and Maximum
disk_writebytes	The number of bytes that are written to the specified disk per second.	byte/s	instanceId and device	Average, Minimum, and Maximum
disk_readiops	The number of read requests received by the specified disk per second.	count/s	instanceId and device	Average, Minimum, and Maximum
disk_writeiops	The number of write requests received by the specified disk per second.	count/s	instanceId and device	Average, Minimum, and Maximum
fs_inodeutilization	The inode usage.	%	instanceId and device	Average, Minimum, and Maximum

Metrics for ApsaraDB RDS whose namespace is acs_rds_dashboard

- Set Project to *acs_rds_dashboard* and the statistical period to 300 seconds. Set Period to an integer multiple of 300.
- If you have set the monitoring period to 1 minute in the ApsaraDB RDS console, you must set the

statistical period to 60 seconds or more.

- Assign the actual instance ID to instanceId in the Dimensions parameter.

Metrics for ApsaraDB RDS for PostgreSQL

Metric	Description	Unit	Dimensions	Statistics
CpuUsage	The CPU utilization.	Percent	instanceId	Average, Minimum, and Maximum
DiskUsage	The disk usage.	Percent	instanceId	Average, Minimum, and Maximum
IOPSUsage	The IOPS usage.	Percent	instanceId	Average, Minimum, and Maximum
ConnectionUsage	The connection usage.	Percent	instanceId	Average, Minimum, and Maximum
MemoryUsage	The memory usage.	Percent	instanceId	Average, Minimum, and Maximum

Metrics for ApsaraDB RDS for MySQL

Metric	Description	Unit	Dimensions	Statistics
MySQL_NetworkInNew	The amount of data sent to an ApsaraDB RDS for MySQL instance per second.	bit/s	instanceId	Average, Minimum, and Maximum
MySQL_NetworkOutNew	The amount of data sent from an ApsaraDB RDS for MySQL instance per second.	bit/s	instanceId	Average, Minimum, and Maximum
CpuUsage	The CPU utilization.	Percent	instanceId	Average, Minimum, and Maximum
DiskUsage	The disk usage.	Percent	instanceId	Average, Minimum, and Maximum
IOPSUsage	The IOPS usage.	Percent	instanceId	Average, Minimum, and Maximum

Metric	Description	Unit	Dimensions	Statistics
ConnectionUsage	The connection usage.	Percent	instanceId	Average, Minimum, and Maximum
MemoryUsage	The memory usage.	Percent	instanceId	Average, Minimum, and Maximum

Metrics for ApsaraDB RDS for SQL Server

Metric	Description	Unit	Dimensions	Statistics
SQLServer_NetworkInNew	The amount of data sent to an ApsaraDB RDS for SQL Server instance per second.	bit/s	instanceId	Average, Minimum, and Maximum
SQLServer_NetworkOutNew	The amount of data sent from an ApsaraDB RDS for SQL Server instance per second.	bit/s	instanceId	Average, Minimum, and Maximum
CpuUsage	The CPU utilization.	Percent	instanceId	Average, Minimum, and Maximum
DiskUsage	The disk usage.	Percent	instanceId	Average, Minimum, and Maximum
IOPSUsage	The IOPS usage.	Percent	instanceId	Average, Minimum, and Maximum
ConnectionUsage	The connection usage.	Percent	instanceId	Average, Minimum, and Maximum
MemoryUsage	The memory usage.	Percent	instanceId	Average, Minimum, and Maximum

Metrics for Server Load Balancer (SLB) whose namespace is acs_slb_dashboard

- Set Project to *acs_slb_dashboard* and the statistical period to 60 seconds. Set Period to an integer multiple of 60.
- Assign the actual instance ID to instanceId in the Dimensions parameter.

- Assign the actual port used by the SLB instance to port in the Dimensions parameter.
- Assign the actual endpoint of the SLB instance to vip in the Dimensions parameter.

Metric	Description	Unit	Dimensions	Statistics
HeathyServerCount	The number of healthy backend ECS instances.	Count	instanceId	Average, Minimum, and Maximum
UnhealthyServerCount	The number of faulty backend ECS instances.	Count	instanceId	Average, Minimum, and Maximum
PacketTX	The number of packets sent over the specified port per second.	Count/Second	instanceId, port, and vip	Average, Minimum, and Maximum
PacketRX	The number of packets received over the specified port per second.	Count/Second	instanceId, port, and vip	Average, Minimum, and Maximum
TrafficRXNew	The amount of data received over the specified port per second.	bit/s	instanceId, port, and vip	Average, Minimum, and Maximum
TrafficTXNew	The amount of data sent over the specified port per second.	bit/s	instanceId, port, and vip	Average, Minimum, and Maximum
ActiveConnection	The number of active connections to SLB on the specified port.	Count	instanceId, port, and vip	Average, Minimum, and Maximum
InactiveConnection	The number of idle connections to SLB on the specified port.	Count	instanceId, port, and vip	Average, Minimum, and Maximum
NewConnection	The number of new connections on the specified port.	Count	instanceId, port, and vip	Average, Minimum, and Maximum
MaxConnection	The number of concurrent connections on the specified port.	Count	instanceId, port, and vip	Average, Minimum, and Maximum

Metric	Description	Unit	Dimensions	Statistics
DropConnection	The number of connections that are dropped per second.	Count/Second	instanceId, port, and vip	Average, Minimum, and Maximum
DropPacketRX	The number of inbound packets that are lost per second.	Count/Second	instanceId, port, and vip	Average, Minimum, and Maximum
DropPacketTX	The number of outbound packets that are lost per second.	Count/Second	instanceId, port, and vip	Average, Minimum, and Maximum
DropTrafficRX	The amount of inbound data that is lost per second.	bit/s	instanceId, port, and vip	Average, Minimum, and Maximum
DropTrafficTX	The amount of outbound data that is lost per second.	bit/s	instanceId, port, and vip	Average, Minimum, and Maximum

Metrics for KVStore for Redis whose namespace is acs_kvstore

- Set Project to *acs_kvstore* and the statistical period to 60 seconds. Set Period to an integer multiple of 60.
- Assign the actual instance ID to instanceId in the Dimensions parameter.

Metric	Description	Unit	Dimensions	Statistics
ConnectionUsage	The connection usage on the specified node.	%	instanceId and nodeId	Average and Maximum
FailedCount	The number of failed commands.	Count/second	instanceId	instanceId and nodeId
IntranetIn	The inbound bandwidth of the specified node.	bit/s	instanceId and nodeId	Average and Maximum
IntranetInRatio	The inbound bandwidth usage of the specified node.	%	instanceId and nodeId	Average and Maximum
IntranetOut	The outbound bandwidth of the specified node.	bit/s	instanceId and nodeId	Average and Maximum

Metric	Description	Unit	Dimensions	Statistics
IntranetOutRatio	The outbound bandwidth usage of the specified node.	%	instanceId and nodeId	Average and Maximum
MemoryUsage	The memory usage of the specified node.	%	instanceId and nodeId	Average and Maximum
UsedQPS	The average queries on the specified node per second.	Count	instanceId and nodeId	Average and Maximum

Metrics for Object Storage Service (OSS) whose namespace is acs_oss_dashboard

Metric	Metric name	Unit	Level
Availability	Availability	%	Bucket level
RequestValidRate	Valid request rate	%	Bucket level
TotalRequestCount	Total requests	N/A	Bucket level
ValidRequestCount	Valid requests	N/A	Bucket level
InternetSend	Outbound traffic from the Internet	byte	Bucket level
InternetRecv	Inbound traffic to the Internet	byte	Bucket level
IntranetSend	Outbound traffic from the internal network	byte	Bucket level
IntranetRecv	Inbound traffic to the internal network	byte	Bucket level
CdnSend	CDN outbound traffic	byte	Bucket level
CdnRecv	CDN inbound traffic	byte	Bucket level
SyncSend	Outbound traffic of cross-region replication	byte	Bucket level
SyncRecv	Inbound traffic of cross-region replication	byte	Bucket level
ServerErrorCount	Server-side error requests	N/A	Bucket level

Metric	Metric name	Unit	Level
ServerErrorRate	Server-side error request rate	%	Bucket level
NetworkErrorCount	Network-side error requests	N/A	Bucket level
NetworkErrorRate	Network-side error request rate	%	Bucket level
AuthorizationErrorCount	Client-side authorization error requests	N/A	Bucket level
AuthorizationErrorRate	Client-side authorization error request rate	%	Bucket level
ResourceNotFoundErrorCount	Client-side error requests indicating resources not found	N/A	Bucket level
ResourceNotFoundErrorRate	Rate of client-side error requests indicating resources not found	%	Bucket level
ClientTimeoutErrorCount	Client-side timeout error requests	N/A	Bucket level
ClientTimeoutErrorRate	Client-side timeout error request rate	%	Bucket level
ClientOtherErrorCount	Other client-side error requests	N/A	Bucket level
ClientOtherErrorRate	Rate of other client-side error requests	%	Bucket level
SuccessCount	Successful requests	N/A	Bucket level
SuccessRate	Successful request rate	%	Bucket level
RedirectCount	Redirect requests	N/A	Bucket level
RedirectRate	Redirect request rate	%	Bucket level
MaxGetObjectE2eLatency	Maximum end-to-end latency of GetObject requests	ms	Bucket level
MaxGetObjectServerLatency	Maximum server latency of GetObject requests	ms	Bucket level

Metric	Metric name	Unit	Level
MaxHeadObjectE2eLatency	Maximum end-to-end latency of HeadObject requests	ms	Bucket level
MaxHeadObjectServerLatency	Maximum server latency of HeadObject requests	ms	Bucket level
MaxPutObjectE2eLatency	Maximum end-to-end latency of PutObject requests	ms	Bucket level
MaxPutObjectServerLatency	Maximum server latency of PutObject requests	ms	Bucket level
MaxPostObjectE2eLatency	Maximum end-to-end latency of PostObject requests	ms	Bucket level
MaxPostObjectServerLatency	Maximum server latency of PostObject requests	ms	Bucket level
MaxAppendObjectE2eLatency	Maximum end-to-end latency of AppendObject requests	ms	Bucket level
MaxAppendObjectServerLatency	Maximum server latency of AppendObject requests	ms	Bucket level
MaxUploadPartE2eLatency	Maximum end-to-end latency of UploadPart requests	ms	Bucket level
MaxUploadPartServerLatency	Maximum server latency of UploadPart requests	ms	Bucket level
MaxUploadPartCopyE2eLatency	Maximum end-to-end latency of UploadPartCopy requests	ms	Bucket level
MaxUploadPartCopyServerLatency	Maximum server latency of UploadPartCopy requests	ms	Bucket level
GetObjectCount	Successful GetObject requests	N/A	Bucket level
HeadObjectCount	Successful HeadObject requests	N/A	Bucket level
PostObjectCount	Successful PostObject requests	N/A	Bucket level

Metric	Metric name	Unit	Level
AppendObjectCount	Successful AppendObject requests	N/A	Bucket level
UploadPartCount	Successful UploadPart requests	N/A	Bucket level
DeleteObjectCount	Successful DeleteObject requests	N/A	Bucket level
DeleteObjectsCount	Successful DeleteObjects requests	N/A	Bucket level

Metrics for VPN Gateway

Set Project to *acs_vpn* and the statistical period to 60 seconds. Set Period to an integer multiple of 60.

Metric	Description	Unit	Dimensions
ssl_client.count	The number of SSL connections.	count	instanceId
ipsec.rxPkgs	The number of inbound packets of a connection per second.	package/s	VpnConnectionId
ipsec.txPkgs	The number of outbound packets of a connection per second.	package/s	VpnConnectionId
ipsec_rx.rate	The inbound bandwidth of a connection.	bit/s	VpnConnectionId
ipsec_tx.rate	The outbound bandwidth of a connection.	bit/s	VpnConnectionId

Metrics for API Gateway

Metric	Description	Unit	Dimensions	Statistics
Latency	The response time.	ms	userId, region, and apiUid	Average
SumQPS	The overall queries per second (QPS).	Count	userId, region, and apiUid	Count
TrafficRX	The inbound bandwidth.	KBytes	userId, region, and apiUid	Sum

Metric	Description	Unit	Dimensions	Statistics
TrafficTX	The outbound bandwidth.	KBytes	userId, region, and apiUid	Sum
code2XX	code2XX	count	userId, region, and apiUid	Value
code4XX	code4XX	count	userId, region, and apiUid	Value
code5XX	code5XX	count	userId, region, and apiUid	Value

Metrics for Elastic IP Address (EIP)

- Set Project to *acs_vpc_eip* and the statistical period to 60 seconds. Set Period to an integer multiple of 60.
- Assign the actual instance ID to instanceId in the Dimensions parameter.
- Assign the actual elastic IP address (EIP) to ip in the Dimensions parameter.

Metric	Description	Unit	Dimensions	Statistics
net_rx.rate	The inbound bandwidth.	bits/s	userId and instanceId	Value
net_rxPkgs.rate	The number of inbound packets per second.	Packets/Second	userId and instanceId	Value
net_rx.rate	The outbound bandwidth.	bits/s	userId and instanceId	Value
net_txPkgs.rate	The number of outbound packets per second.	Packets/Second	userId and instanceId	Value
out_ratelimit_drop_speed	The packet loss rate when the data transfer rate is limited.	Packets/Second	userId and instanceId	Average

Metrics for AnalyticDB for PostgreSQL

Metric	Description	Unit	Dimensions	Statistics
ConnectionUsage	The connection usage.	%	userId, instanceId, and role	Average
CpuUsage	The CPU utilization.	%	userId, instanceId, and role	Average

Metric	Description	Unit	Dimensions	Statistics
DiskUsage	The disk usage.	%	userId, instanceId, and role	Average
IOPSUsage	The IOPS usage.	%	userId, instanceId, and role	Average
MemoryUsage	The memory usage.	%	userId, instanceId, and role	Average

1.1.2.7.2. Monitoring data on time series metrics of cloud services

1.1.2.7.2.1. DescribeProjectMeta

You can call this operation to query information of monitored services in Cloud Monitor.

The information obtained by this operation includes the service description, namespace, and tags.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeProjectMeta	The operation that you want to perform. Set the value to DescribeProjectMeta.
callerType	String	No	""	The type of the caller.

Parameter	Type	Required	Example	Description
Labels	String	No	[{"name":"product","value":"ECS"}]	The tags of metrics. You can specify tags of metrics to filter services. A tag of a metric is used as a special mark of alerts triggered by the metric. For example, a tag can specify the service specification to which an alert belongs and whether an alert rule can be configured for a metric. The format is `[{"name":"Tag name","value":"Tag value"},{"name":"Tag name","value":"Tag value"}]`. The following section describes the common tags: • alertUnit: the unit of the metric in the alert. **Note** The original metric value may be too large due to a small unit. In this case, you can use the `alertUnit` tag to specify an appropriate unit. This tag is used in Cloud Monitor. • minAlertPeriod: the minimum time interval to raise a new alert. Typically, the interval is 1 minute. • metricCategory: the service specification. Example: kvstore_sharding. **Note** Some services of Apsara Stack have different specifications with the same namespace. The metricCategory tag can be used to distinguish between the specifications. • is_alarm: specifies whether an alert rule can be configured for a metric. **Note** Apsara Stack has some other tags that are dedicated for Cloud Monitor. We recommend that you do not use such tags.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	30	The number of entries to return on each page. Default value: 30. **Note** Apsara Stack does not limit the value of this parameter. If you want to view all desired entries on a small number of pages, set this parameter to a greater value.
RequestId	string	No	sdsdsdd	The ID of the request.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Message	String	success	The error message.
PageNumber	String	1	The page number of the returned page.
PageSize	String	10	The number of entries returned per page.
RequestId	String	4C2061B2-3B1B-43BF-A4A4-C53426F479C0	The ID of the request.
Resources	Array	N/A	The information of services found.
Resource	N/A	N/A	The information of a service found.
Description	String	CDN	The description of the service.

Parameter	Type	Example	Description
Labels	String	[{"groupFlag":true}]	The tags of metrics. Services were filtered based on the specified tags. A tag of a metric is used as a special mark of alerts triggered by the metric. For example, a tag can specify the service specification to which an alert belongs and whether an alert rule can be configured for a metric. The format is `[{"name":"Tag name","value":"Tag value"},{"name":"Tag name","value":"Tag value"}]`. The following section describes the common tags: • alertUnit: the unit of the metric in the alert. **Note** The original metric value may be too large due to a small unit. In this case, you can use the `alertUnit` tag to specify an appropriate unit. This tag is used in Cloud Monitor. • minAlertPeriod: the minimum time interval to raise a new alert. Typically, the interval is 1 minute. • metricCategory: the service specification. Example: kvstore_sharding. **Note** Some services of Apsara Stack have different specifications with the same namespace. The metricCategory tag can be used to distinguish between the specifications. • is_alarm: specifies whether an alert rule can be configured for a metric. **Note** Apsara Stack has some other tags that are dedicated for Cloud Monitor. We recommend that you do not use such tags.

Parameter	Type	Example	Description
Namespace	String	acs_cdn	The namespace of the service, which is used to distinguish between services. Typically, the value of the format is `acs_Abbreviation of the service name`.
Success	Boolean	true	Indicates whether the call was successful.
Total	String	12	The total number of entries returned.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeProjectMeta
&<Common request parameters>
```

Sample success responses

> **Note** The response content varies with the services that are actually monitored.

`JSON` format


```
{
 "PageNumber":1,
 "PageSize":5,
 "RequestId":"4C2061B2-3B1B-43BF-A4A4-C53426F479C0",
 "Success":true,
 "Code":200,
 "Total":62,
 "Resources":{
  "Resource":[{
     "Description": "ECS",
     "Labels": "[{\"name\":\"product\",\"value\":\"ECS\"},{\"name\":\"productCategory\",\"value\":\"ecs,ecs_net_interface,hpc_node,hpc_cluster\"},{\"name\":\"groupFlag\",\"value\":\"true\"},{\"name\":\"cnName\",\"value\":\"ECS\"},{\"name\":\"enName\",\"value\":\"ECS\"}]",
     "Namespace": "acs_ecs_dashboard"
    },
  ]
 }
}
```


1.1.2.7.2.2. DescribeMetricLast

You can call this operation to query the latest monitoring data of a monitored object.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMetricLast	The operation that you want to perform. Set the value to DescribeMetricLast.
MetricName	String	Yes	CPUUtilization	The name of the metric.
Namespace	String	Yes	acs_ecs_dashboard	The namespace of the service. Specify the value in the format of acs_Service name.
Dimensions	String	No	[{"instanceId":"XXXXXX"}]	The dimension map of the monitored resources. The value is a collection of `key-value` pairs. A typical `key-value` pair is `instanceId:XXXXXX`. The `key` and `value` must each be 1 to 64 bytes in length. Excessive bytes are truncated from the string. The `key` and `value` can contain letters, digits, periods (.), hyphens (-), underscores (_), forward slashes (/), and backslashes (\). **Note** If you hope to see a key-value map expressed by JSON strings, set `Dimensions` to ordered strings.
EndTime	String	No	2019-01-31 10:10:00	The end of the time range for the query. The value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. **Note** Only a time range within the last 270 days can be specified to query.

Parameter	Type	Required	Example	Description
Express	String	No	{"groupby":["userId","instanceId"]}	The expression for real-time computation on the query results.
Length	String	No	1000	The number of entries to return on each page. Default value: 1000.
NextToken	String	No	15761432850009dd70bb64cff1f0fff6c0b08ffff073be5fb1e785e2b020f7fed9b5e137bd810a6d6cff5ae****	The pagination cursor. • If the number of entries that match the search criteria exceeds the maximum number allowed on a single page, a pagination cursor is returned. • This pagination cursor can be used as an input parameter to obtain entries on the next page. If a response does not contain pagination cursors, all query results are returned.
Period	String	No	60	The time interval at which to query monitoring data. Typically, the time interval is the same as the interval for reporting metric data. Unit: seconds. • If you do not specify this parameter, raw data is queried at the reporting interval specified when the corresponding metric was created. • If a statistical period was specified for the corresponding alert rule, raw data is queried based on the statistical period.
StartTime	String	No	2019-01-31 10:00:00	The start of the time range for the query. The value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. **Note** Only a time range that covers a maximum of 31 days within the last 270 days can be specified to query.

Response parameters

Parameter	Type	Example	Description
RequestId	String	021472A6-25E3-4094-8D00-BA4B6A5486C3	The ID of the request.
Code	String	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Success	Boolean	true	Indicates whether the call was successful.
Period	String	60	The time interval at which monitoring data was queried. Unit: seconds.
NextToken	String	xxxxxx	The pagination cursor.
Datapoints	String	[{"timestamp":1548777660000,"userId":"123","instanceId":"i-abc","Minimum":9.92,"Average":9.92,"Maximum":9.92}]	The list of monitoring data.
Message	String	Success	The error message.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeMetricLast
&MetricName=CPUUtilization
&Namespace=acs_ecs_dashboard
&<Common request parameters>
```

Sample success responses

`XML` format

```
<QueryMetricListResponse>
    <Period>60</Period>
    <Datapoints>
        <Datapoints>
            <timestamp>1490152860000</timestamp>
            <Maximum>100</Maximum>
```

```
            <userId> 123456789876****</userId>
            <Minimum>93.1</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.52</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490152920000</timestamp>
            <Maximum>100</Maximum>
            <userId> 123456789876**** </userId>
            <Minimum>92.59</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.49</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490152980000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>92.86</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.44</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153040000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>91.43</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.36</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153100000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>93.55</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.51</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153160000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>93.1</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.52</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153220000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>92.59</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.42</Average>
        </Datapoints>
        <Datapoints>
```

```
            <timestamp>1490153280000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>91.18</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.34</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153340000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>92.86</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.46</Average>
        </Datapoints>
        <Datapoints>
            <timestamp>1490153400000</timestamp>
            <Maximum>100</Maximum>
            <userId>123456789876****</userId>
            <Minimum>91.18</Minimum>
            <instanceId>i-abcdefgh12****</instanceId>
            <Average>99.35</Average>
        </Datapoints>
    </Datapoints>
    <RequestId>6661EC50-8625-4161-B349-E0DD59002AB7</RequestId>
    <Success>true</Success>
    <Code>200</Code>
</QueryMetricListResponse>
```

`JSON` format

```
{
 "Period":"60",
 "Datapoints":[
  {
   "timestamp":1490152860000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":93.1,
   "Average":99.52
  },
  {
   "timestamp":1490152920000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":92.59,
   "Average":99.49
  },
  {
   "timestamp":1490152980000,
   "Maximum":100,
   "userId":"123456789876****",
```

```
 "instanceId":"i-abcdefgh12****",
 "Minimum":92.86,
 "Average":99.44
},
{
 "timestamp":1490153040000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":91.43,
 "Average":99.36
},
{
 "timestamp":1490153100000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":93.55,
 "Average":99.51
},
{
 "timestamp":1490153160000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":93.1,
 "Average":99.52
},
{
 "timestamp":1490153220000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":92.59,
 "Average":99.42
},
{
 "timestamp":1490153280000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":91.18,
 "Average":99.34
},
{
 "timestamp":1490153340000,
 "Maximum":100,
 "userId":"123456789876****",
 "instanceId":"i-abcdefgh12****",
 "Minimum":92.86,
 "Average":99.46
},
{
 "timestamp":1490153400000,
```

```
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":91.18,
    "Average":99.35
   }
  ],
  "RequestId":"6A5F022D-AC7C-460E-94AE-B9E75083D027",
  "Success":true,
  "Code":"200"
}
```


1.1.2.7.2.3. DescribeMetricList

You can call this operation to query the monitoring data of time series metrics of Apsara Stack services in a specified period.

For more information about how to assign values to the Namespace, Project, Metric, Period, and Dimensions parameters for Apsara Stack services, see Major metrics of Apsara Stack services.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMetricList	The operation that you want to perform. Set the value to DescribeMetricList.
MetricName	String	Yes	cpu_idle	The name of the metric that you want to query.
Namespace	String	Yes	acs_ecs_dashboard	The namespace of the service. Specify the value in the format of acs_Service name.

Parameter	Type	Required	Example	Description
Dimensions	String	No	[{"instanceId": "i-abcdefgh12****"}]	The dimension map of the monitored resources. The value is a collection of `key-value` pairs. A typical `key-value` pair is `instanceId:XXXXXX`. The `key` and `value` must each be 1 to 64 bytes in length. Excessive bytes are truncated from the string. The `key` and `value` can contain letters, digits, periods (.), hyphens (-), underscores (_), forward slashes (/), and backslashes (\). **Note** If you want to see a key-value map expressed by JSON strings, set `Dimensions` to ordered strings.
EndTime	String	No	2019-01-30 00:10:00	The end of the time range for the query. Supported formats: • UNIX timestamp: The value can be a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. • Time format: The value can be in the YYYY-MM-DDThh:mm:ssZ format.
Express	String	No	{"groupby": ["userId","instanceId"]}	The expression for real-time computation on the query results. Only the `groupby` expression is supported, which is similar to the `groupby` statement used in databases.
Length	String	No	1000	The number of entries to return on each page. Default value: 1000.

Parameter	Type	Required	Example	Description
NextToken	String	No	15761485350009dd70bb64cff1f0fff750b08ffff073be5fb1e785e2b020f1a949d5ea14aea7fed82f01dd87311	The pagination cursor. **Note** You do not need to specify this parameter if you only want to obtain entries on the first page. The pagination cursor returned in a response can be used as an input parameter for obtaining entries on the next page. If a response contains no pagination cursors, all the query result has been returned.
Period	String	No	60	The time interval at which monitoring data is queried. Unit: seconds. Valid values: 60, 300, and 900, which represent 1 minute, 5 minutes, and 15 minutes. **Note** Set this parameter to suit your needs. For example, if you set this parameter to 60, only 1,000 records are returned, though a total of 1,440 records are generated. This is because the maximum number of records that can be returned for each query is 1,000. If you set this parameter to 300, 288 records are returned.

Parameter	Type	Required	Example	Description
StartTime	String	No	2019-01-30 00:00:00	The start of the time range for the query. Supported formats: • UNIX timestamp: The value can be a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. • Time format: The value can be in the YYYY-MM-DDThh:mm:ssZ format. **Note** The period specified by StartTime and EndTime includes the time point specified by EndTime but does not include the time point specified by StartTime. StartTime must be earlier than EndTime.

Response parameters

Parameter	Type	Example	Description
RequestId	String	3121AE7D-4AFF-4C25-8F1D-C8226EBB1F42	The ID of the request.
Code	String	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Success	Boolean	true	Indicates whether the call was successful.
NextToken	String	15761441850009dd70bb64cff1f0fff6d0b08ffff073be5fb1e785e2b020f7fed9b5e137bd810a6d6cff5aee816	The pagination cursor. **Note** If this parameter was not specified, only entries on the first page were returned. If a response contains a pagination cursor, more entries are to be returned. If a response contains no pagination cursors, all the query result has been returned.

Parameter	Type	Example	Description
Period	String	60	The time interval at which monitoring data was queried. Unit: seconds. Valid values: 60, 300, and 900.
Datapoints	String	[{"timestamp":1548777660000,"userId":"123","instanceId":"i-abc","Minimum":9.92,"Average":9.92,"Maximum":9.92}]	The list of monitoring data.
Message	String	Success	The error message.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeMetricList
&MetricName=cpu_idle
&Namespace=acs_ecs_dashboard
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Period>60</Period>
<Datapoints>
    <timestamp>1490152860000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>93.1</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.52</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490152920000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>92.59</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.49</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490152980000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>92.86</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
```

```
    <Average>99.44</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153040000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>91.43</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.36</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153100000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>93.55</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.51</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153160000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>93.1</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.52</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153220000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>92.59</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.42</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153280000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>91.18</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.34</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153340000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>92.86</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.46</Average>
</Datapoints>
<Datapoints>
    <timestamp>1490153400000</timestamp>
    <Maximum>100</Maximum>
    <userId>123456789876****</userId>
    <Minimum>91.19</Minimum>
```

```
    <Minimum>91.18</Minimum>
    <instanceId>i-abcdefgh12****</instanceId>
    <Average>99.35</Average>
</Datapoints>
<RequestId>6A5F022D-AC7C-460E-94AE-B9E75083D027</RequestId>
<Success>true</Success>
<Code>200</Code>
```

`JSON` format

```
{
 "Period":"60",
 "Datapoints":[
  {
   "timestamp":1490152860000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":93.1,
   "Average":99.52
  },
  {
   "timestamp":1490152920000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":92.59,
   "Average":99.49
  },
  {
   "timestamp":1490152980000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":92.86,
   "Average":99.44
  },
  {
   "timestamp":1490153040000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":91.43,
   "Average":99.36
  },
  {
   "timestamp":1490153100000,
   "Maximum":100,
   "userId":"123456789876****",
   "instanceId":"i-abcdefgh12****",
   "Minimum":93.55,
   "Average":99.51
  },
  {
```

```
    "timestamp":1490153160000,
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":93.1,
    "Average":99.52
   },
   {
    "timestamp":1490153220000,
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":92.59,
    "Average":99.42
   },
   {
    "timestamp":1490153280000,
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":91.18,
    "Average":99.34
   },
   {
    "timestamp":1490153340000,
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":92.86,
    "Average":99.46
   },
   {
    "timestamp":1490153400000,
    "Maximum":100,
    "userId":"123456789876****",
    "instanceId":"i-abcdefgh12****",
    "Minimum":91.18,
    "Average":99.35
   }
  ],
  "RequestId":"6A5F022D-AC7C-460E-94AE-B9E75083D027",
  "Success":true,
  "Code":"200"
}
```


1.1.2.7.2.4. DescribeMetricMetaList

You can call this operation to query the descriptions of time series metrics that are supported in Cloud Monitor.

This operation is used with DescribeMetricList and DescribeMetricLast.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMetricMetaList	The operation that you want to perform. Set the value to DescribeMetricMetaList.
Namespace	String	Yes	acs_kvstore	The namespace of the service. You can call the DescribeProjectMeta operation to query the namespace of each service.
Labels	String	No	[{"name":"productCategory","value":"kvstore_old"}]	The tags of the metric. You must specify the tags in the following format: `[{"name":"Tag key","value":"Tag value"},{"name":"Tag key","value":"Tag value"}]`. The following tags are available: • metricCategory: the category of the metric. • alertEnable: specifies whether to enable alerts. • alertUnit: the unit of the metric in the alert. • unitFactor: the factor for metric unit conversion. • minAlertPeriod: the minimum time interval to raise a new alert. • productCategory: the category of the service.
MetricName	String	No	CPUUtilization	The name of the metric. The metric with the specified name is matched.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	30	The number of entries to return on each page. Default value: 30.

Response parameters

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the call was successful.
Code	String	200	The HTTP status code. The status code 200 indicates that the call was successful.
RequestId	String	0CCE0AF0-053C-4B13-A583-DC9A85785D49	The ID of the request, which can be used for troubleshooting.
Message	String	success	The error message.
Resources			The information of metrics found.
Resource			The information of a metric found.
Description	String	CPUUtilization	The description of the metric.
Dimensions	String	instanceId	The dimensions of the metric. Multiple dimensions are separated by commas (,). Example: userId,instanceId.
Labels	String	[{\"name\":\"alertUnit\",\"value\":\"Bytes\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"instanceType\",\"value\":\"disaster\"},{\"name\":\"is_alarm\",\"value\":\"true\"},{\"name\":\"productCategory\",\"value\":\"kvstore_old\"}]	The tags of the metric. The value is a JSON array string. The array can include repeated tag names `[{"name":"Tag name","value":"Tag value"}]`. The following tags are available: • metricCategory: the category of the metric. • alertEnable: indicates whether the alert is enabled. • alertUnit: the unit of the metric in the alert. • unitFactor: the factor for metric unit conversion. • minAlertPeriod: the minimum time interval to raise a new alert. • productCategory: the category of the service.
MetricName	String	CPUUtilization	The name of the metric that you want to query.

Parameter	Type	Example	Description
Namespace	String	acs_kvstore	The namespace of the service. The namespace is in the format of acs_Service name.
Periods	String	60,300	The statistical period of the metric. Multiple periods are separated by commas (,). Example: 15,60,900.
Statistics	String	Average,Minimum,Maximum	The statistical method of the metric. Multiple statistical methods are separated by commas (,). Example: Average,Minimum,Maximum.
Unit	String	%	The unit of the metric.
TotalCount	String	12	The total number of records.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeMetricMetaList
&Namespace=acs_ecs_dashboard
&<Common request parameters>
```

Sample success responses

Note The response content varies with the services that are actually monitored.

`XML` format

```
<DescribeMetricMetaListResponse>
    <TotalCount>120</TotalCount>
    <RequestId>EA94B362-973C-4D6B-BE94-6774E18915C2</RequestId>
    <Success>true</Success>
    <Code>200</Code>
    <Resources>
        <Resource>
            <Description>ECS.CPUUtilization</Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>CPUUtilization</MetricName>
            <Labels>[{"name":"alertUnit","value":"%"},{"name":"alertDefault","value":"80"},
{"name":"minAlertPeriod","value":"60"},{"name":"metricCategory","value":"instanceId"},{"nam
e":"is_alarm","value":"true"}]</Labels>
            <Dimensions>userId,instanceId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
```

```
            <Periods>60,300</Periods>
            <Unit>%</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Maximum,Minimum</Statistics>
            <MetricName>DiskReadBPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Mbytes/s"},{"name":"minAlertPeriod","valu
e":"60"},{"name":"unitFactor","value":"1048576"},{"name":"metricCategory","value":"instance
Id"},{"name":"is_alarm","value":"true"}]</Labels>
            <Dimensions>userId,instanceId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>bytes/s</Unit>
        </Resource>
        <Resource>
            <Description>The read IOPS of the system disk</Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>DiskReadIOPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Count/Second"},{"name":"minAlertPeriod","
value":"60"},{"name":"metricCategory","value":"instanceId"},{"name":"is_alarm","value":"tru
e"}]</Labels>
            <Dimensions>userId,instanceId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>Count/Second</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Maximum,Minimum</Statistics>
            <MetricName>DiskWriteBPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Mbytes/s"},{"name":"minAlertPeriod","valu
e":"60"},{"name":"unitFactor","value":"1048576"},{"name":"metricCategory","value":"instance
Id"},{"name":"is_alarm","value":"true"}]</Labels>
            <Dimensions>userId,instanceId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>bytes/s</Unit>
        </Resource>
        <Resource>
            <Description>The write IOPS of the system disk</Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>DiskWriteIOPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Count/Second"},{"name":"minAlertPeriod","
value":"60"},{"name":"metricCategory","value":"instanceId"},{"name":"is_alarm","value":"tru
e"}]</Labels>
            <Dimensions>userId,instanceId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>Count/Second</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>GroupCPUUtilization</MetricName>
```

```
            <MetricName>GroupCpuUtilization</MetricName>
            <Labels>[{"name":"alertUnit","value":"%"},{"name":"minAlertPeriod","value":"60"
},{"name":"metricCategory","value":"groupId"}]</Labels>
            <Dimensions>groupId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>%</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>GroupDiskReadBPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Mbytes/s"},{"name":"minAlertPeriod","valu
e":"60"},{"name":"unitFactor","value":"1048576"},{"name":"metricCategory","value":"groupId"
}]</Labels>
            <Dimensions>groupId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>bytes/s</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>GroupDiskReadIOPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Count/Second"},{"name":"minAlertPeriod","
value":"60"},{"name":"metricCategory","value":"groupId"}]</Labels>
            <Dimensions>groupId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>Count/Second</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>GroupDiskWriteBPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Mbytes/s"},{"name":"minAlertPeriod","valu
e":"60"},{"name":"unitFactor","value":"1048576"},{"name":"metricCategory","value":"groupId"
}]</Labels>
            <Dimensions>groupId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>bytes/s</Unit>
        </Resource>
        <Resource>
            <Description></Description>
            <Statistics>Average,Minimum,Maximum</Statistics>
            <MetricName>GroupDiskWriteIOPS</MetricName>
            <Labels>[{"name":"alertUnit","value":"Count/Second"},{"name":"minAlertPeriod","
value":"60"},{"name":"metricCategory","value":"groupId"}]</Labels>
            <Dimensions>groupId</Dimensions>
            <Namespace>acs_ecs_dashboard</Namespace>
            <Periods>60,300</Periods>
            <Unit>Count/Second</Unit>
        </Resource>
    </Resources>
```

```
</DescribeMetricMetaListResponse>
```

`JSON` format


```
{
 "TotalCount":1853,
 "RequestId":"CDE9EAFF-D54E-4024-BBFC-B0AAC883143B",
 "Success":true,
 "Code":200,
 "Resources":{
  "Resource":[
   {
    "Description": "The disk size",
    "MetricName":"ads.diskSize",
    "Statistics":"Average,Minimum,Maximum",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"300\"},{\"name\":\"alertDefault\",\
"value\":\"\"},{\"name\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":
\"Mbytes\"},{\"name\":\"productCategory\",\"value\":\"ads\"},{\"name\":\"is_alarm\",\"value
\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"workerId\"}]",
    "Dimensions":"userId,instanceId,tableSchema,workerId",
    "Namespace":"acs_ads",
    "Periods":"300",
    "Unit":"Mbytes"
   },
   {
    "Description": "The used space of the disk",
    "MetricName":"ads.diskUsed",
    "Statistics":"Average,Minimum,Maximum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbytes\"},{\"name\":\"minAlertPeriod\",\
"value\":\"300\"},{\"name\":\"metricCategory\",\"value\":\"workerId\"},{\"name\":\"is_alarm
\",\"value\":\"true\"}]",
    "Dimensions":"userId,instanceId,tableSchema,workerId",
    "Namespace":"acs_ads",
    "Periods":"300",
    "Unit":"Mbytes"
   },
   {
    "Description":"The disk usage",
    "MetricName":"ads.diskUsedPercent",
    "Statistics":"Average,Minimum,Maximum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"%\"},{\"name\":\"minAlertPeriod\",\"valu
e\":\"300\"},{\"name\":\"metricCategory\",\"value\":\"workerId\"},{\"name\":\"is_alarm\",\"
value\":\"true\"}]",
    "Dimensions":"userId,instanceId,tableSchema,workerId",
    "Namespace":"acs_ads",
    "Periods":"300",
    "Unit":"%"
   },
   {
    "Description": "The number of unconsumed messages in the queue",
    "MetricName":"QueueMessageAccumulation",
    "Statistics":"Maximum",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"alertDefault\",\"
```

```
value\":\"\"},{\"name\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":\
"count/min\"},{\"name\":\"productCategory\",\"value\":\"amqp\"},{\"name\":\"is_alarm\",\"va
lue\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"queue\"}]",
    "Dimensions":"userId,regionId,vhostName,queueName",
    "Namespace":"acs_amqp",
    "Periods":"60,300",
    "Unit":"count/min"
   },
   {
    "Description": "The number of new messages in the queue per minute",
    "MetricName":"QueueMessageInput",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"alertDefault\",\"
value\":\"\"},{\"n ame\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":
\"count/min\"},{\"name\":\"productCategory\",\"value\":\"amqp\"},{\"name\":\"is_alarm\",\"v
alue\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"queue\"}]",
    "Dimensions":"userId,regionId,vhostName,queueName",
    "Namespace":"acs_amqp",
    "Periods":"60,300",
    "Unit":"count/min"
   },
   {
    "Description": "The number of unconsumed messages in the queue",
    "MetricName":"QueueMessageOutput",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"alertDefault\",\"
value\":\"\"},{\"name\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":\
"count/min\"},{\"name\":\"productCategory\",\"value\":\"amqp\"},{\"name\":\"is_alarm\",\"va
lue\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"queue\"}]",
    "Dimensions":"userId,regionId,vhostName,queueName",
    "Namespace":"acs_amqp",
    "Periods":"60,300",
    "Unit":"count/min"
   },
   {
    "Description":"The number of messages generated by the instance per minute",
    "MetricName":"VhostMessageInput",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"alertDefault\",\"
value\":\"\"},{\"name\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":\
"count/min\"},{\"name\":\"productCategory\",\"value\":\"amqp\"},{\"name\":\"is_alarm\",\"va
lue\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"vhost\"}]",
    "Dimensions":"userId,regionId,vhostName",
    "Namespace":"acs_amqp",
    "Periods":"60,300",
    "Unit":"count/min"
   },
   {
    "Description":"The number of messages consumed by the instance per minute",
    "MetricName":"VhostMessageOutput",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"alertDefault\",\"
value\":\"\"},{\"name\":\"unitFactor\",\"value\":\"1\"},{\"name\":\"alertUnit\",\"value\":\
"count/min\"},{\"name\":\"productCategory\",\"value\":\"amqp\"},{\"name\":\"is_alarm\",\"va
lue\":\"true\"},{\"name\":\"metricCategory\",\"value\":\"vhost\"}]",
```

```
    "Dimensions":"userId,regionId,vhostName",
    "Namespace":"acs_amqp",
    "Periods":"60,300",
    "Unit":"count/min"
   },
   {
    "Description":"",
    "MetricName":"Latency",
    "Statistics":"Average",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"ms\"},{\"name\":\"minAlertPeriod\",\"val
ue\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",
\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300,900",
    "Unit":"ms"
   },
   {
    "Description":"",
    "MetricName":"SumQPS",
    "Statistics":"Count",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Count\"},{\"name\":\"minAlertPeriod\",\"
value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm
\",\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300,900",
    "Unit":"Count"
   },
   {
    "Description":"",
    "MetricName":"TrafficRX",
    "Statistics":"Sum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"KBytes\"},{\"name\":\"minAlertPeriod\",\
"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alar
m\",\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300,900",
    "Unit":"KBytes"
   },
   {
    "Description":"",
    "MetricName":"TrafficTX",
    "Statistics":"Sum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"KBytes\"},{\"name\":\"minAlertPeriod\",\
"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alar
m\",\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300,900",
    "Unit":"KBytes"
   },
   {
```

```
    "Description":"",
    "MetricName":"code2XX",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"count\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300",
    "Unit":"count"
   },
   {
    "Description":"",
    "MetricName":"code4XX",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"count\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"tru\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300",
    "Unit":"count"
   },
   {
    "Description":"",
    "MetricName":"code5XX",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"count\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"true\"}]",
    "Dimensions":"userId,region,apiUid",
    "Namespace":"acs_apigateway_dashboard",
    "Periods":"60,300",
    "Unit":"count"
   },
   {
    "Description":"",
    "MetricName":"net_rx.Pkgs",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"pps\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_bandwidth_package",
    "Periods":"60,300,600",
    "Unit":"pps"
   },
   {
    "Description":"",
    "MetricName":"net_rx.rate",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbits/s\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1048576\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"true\"}]",
```

```
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_bandwidth_package",
    "Periods":"60,300,600",
    "Unit":"bits/s"
   },
   {
    "Description":"",
    "MetricName":"net_tx.Pkgs",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"pps\"},{\"name\":\"minAlertPeriod\",\"va
lue\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\"
,\"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_bandwidth_package",
    "Periods":"60,300,600",
    "Unit":"pps"
   },
   {
    "Description":"",
    "MetricName":"net_tx.rate",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbits/s\"},{\"name\":\"minAlertPeriod\",
\"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1048576\"},{\"name\":\"metricCategor
y\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_bandwidth_package",
    "Periods":"60,300,600",
    "Unit":"bits/s"
   },
   {
    "Description":"",
    "MetricName":"net_tx.ratePercent",
    "Statistics":"Value",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"%\"},{\"name\":\"minAlertPeriod\",\"valu
e\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\
"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_bandwidth_package",
    "Periods":"60,300,600",
    "Unit":"%"
   },
   {
    "Description":"The maximum network traffic per unit time",
    "MetricName":"BPS",
    "Statistics":"Average,Minimum,Maximum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbits/s\"},{\"name\":\"minAlertPeriod\",
\"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1000000\"},{\"name\":\"metricCategor
y\",\"value\":\"instanceId\"},{\"name\":\"unitFactor\",\"value\":\"1000\"},{\"name\":\"is_a
larm\",\"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_cdn",
    "Periods":"60,300",
    "Unit":"bits/s"
   },
```

```
    {
     "Description":"",
     "MetricName":"GroupBPS",
     "Statistics":"Sum",
     "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbits/s\"},{\"name\":\"minAlertPeriod\",
\"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1000000\"},{\"name\":\"metricCategor
y\",\"value\":\"groupId\"},{\"name\":\"unitFactor\",\"value\":\"1000\"}]",
     "Dimensions":"userId,groupId",
     "Namespace":"acs_cdn",
     "Periods":"60,300",
     "Unit":"bits/s"
    },
    {
     "Description":"",
     "MetricName":"GroupInternetOut",
     "Statistics":"Sum",
     "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbytes\"},{\"name\":\"minAlertPeriod\",\
"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1000000\"},{\"name\":\"metricCategory
\",\"value\":\"groupId\"},{\"name\":\"unitFactor\",\"value\":\"1000\"}]",
     "Dimensions":"userId,groupId",
     "Namespace":"acs_cdn",
     "Periods":"60,300",
     "Unit":"bytes"
    },
    {
     "Description":"The downstream traffic",
     "MetricName":"InternetOut",
     "Statistics":"Sum",
     "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Mbytes\"},{\"name\":\"minAlertPeriod\",\
"value\":\"60\"},{\"name\":\"unitFactor\",\"value\":\"1000000\"},{\"name\":\"metricCategory
\",\"value\":\"instanceId\"},{\"name\":\"unitFactor\",\"value\":\"1000\"},{\"name\":\"is_al
arm\",\"value\":\"true\"}]",
     "Dimensions":"userId,instanceId",
     "Namespace":"acs_cdn",
     "Periods":"60,300",
     "Unit":"bytes"
    },
    {
     "Description": "The average number of accesses in the specified time range",
     "MetricName":"QPS",
     "Statistics":"Average,Minimum,Maximum",
     "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Count\"},{\"name\":\"minAlertPeriod\",\"
value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm
\",\"value\":\"true\"}]",
     "Dimensions":"userId,instanceId",
     "Namespace":"acs_cdn",
     "Periods":"60,300",
     "Unit":"Count"
    },
    {
     "Description":"",
     "MetricName":"UserQPS",
     "Statistics":"Average",
     "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Count\"},{\"name\":\"alertDefault\",\"va
```

```
lue\":\"Count\"},{\"name\":\"minAlertPeriod\",\"value\":\"60\"},{\"name\":\"metricCategory\
",\"value\":\"userId\"}]",
    "Dimensions":"userId",
    "Namespace":"acs_cdn",
    "Periods":"60,300",
    "Unit":""
   },
   {
    "Description":"",
    "MetricName":"Usercode4xx",
    "Statistics":"Average",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Count\"},{\"name\":\"minAlertPeriod\",\"
value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"userId\"}]",
    "Dimensions":"userId",
    "Namespace":"acs_cdn",
    "Periods":"60",
    "Unit":"Count"
   },
   {
    "Description":"",
    "MetricName":"Usercode5xx",
    "Statistics":"Average",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"Count\"},{\"name\":\"minAlertPeriod\",\"
value\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"userId\"}]",
    "Dimensions":"userId",
    "Namespace":"acs_cdn",
    "Periods":"60",
    "Unit":"Count"
   },
   {
    "Description":"",
    "MetricName":"UserhitRate",
    "Statistics":"Average",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"%\"},{\"name\":\"minAlertPeriod\",\"valu
e\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"userId\"}]",
    "Dimensions":"userId",
    "Namespace":"acs_cdn",
    "Periods":"60",
    "Unit":"%"
   },
   {
    "Description": "The percentage of 4XX HTTP status codes over total status codes in the
specified time range",
    "MetricName":"code4xx",
    "Statistics":"Average,Minimum,Maximum",
    "Labels":"[{\"name\":\"alertUnit\",\"value\":\"%\"},{\"name\":\"minAlertPeriod\",\"valu
e\":\"60\"},{\"name\":\"metricCategory\",\"value\":\"instanceId\"},{\"name\":\"is_alarm\",\
"value\":\"true\"}]",
    "Dimensions":"userId,instanceId",
    "Namespace":"acs_cdn",
    "Periods":"60,300",
    "Unit":"%"
   }
  ]
 }
```

```
}
```

1.1.2.7.3. Alert rules for time series metrics

1.1.2.7.3.1. DescribeMetricRuleList

You can call this operation to query alert rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMetricRuleList	The operation that you want to perform. Set the value to DescribeMetricRuleList.
Namespace	String	No	acs_ecs_dashboard	The namespace of the service. **Note** For more information, see Major metrics of Apsara Stack services.
MetricName	String	No	cpu_total	The name of the metric. **Note** For more information, see Major metrics of Apsara Stack services.
EnableState	Boolean	No	true	Specifies whether to query enabled or disabled alert rules. Valid values: • true: indicates that enabled alert rules are queried. • false: indicates that disabled alert rules are queried. This parameter is empty by default, which indicates that both enabled and disabled rules are queried.
Page	String	No	1	The number of the page to return. Default value: 1.

Parameter	Type	Required	Example	Description
PageSize	String	No	10	The number of entries to return on each page. Default value: 10.
AlertState	String	No	ALARM	The status of the alert rule. Valid values: • OK: No active alerts are triggered based on the alert rule. • ALARM: At least one alert is triggered based on the alert rule. • INSUFFICIENT_DATA: No data is available.
Dimensions	String	No	{"instanceId":"i-xy123****"}	The dimension map of the monitored resources. The value is a collection of `key-value` pairs. A typical `key-value` pair is `instanceId:XXXXXX`. The `key` and `value` must each be 1 to 64 bytes in length. Excessive bytes are truncated from the string. The `key` and `value` can contain letters, digits, periods (.), hyphens (-), underscores (_), forward slashes (/), and backslashes (\). **Note** If you hope to see a key-value map expressed by JSON strings, set `Dimensions` to ordered strings.
RuleName	String	No	ECS CPU alert rule	The name of the alert rule. **Note** This parameter supports fuzzy match.
GroupId	String	No	123456	The ID of the application group.

Parameter	Type	Required	Example	Description
RuleIds	String	No	a151cd6023eacee2f0978e03863cc1697c8950812****	The ID of the alert rule. **Note** You can specify a maximum of 20 alert rule IDs. Separate multiple IDs with commas (,).

Response parameters

Parameter	Type	Example	Description
RequestId	String	0E657631-CD6C-4C24-9637-98D000B9272C	The ID of the request.
Code	Integer	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Total	String	21	The total number of entries returned.
Success	Boolean	true	Indicates whether the call was successful.
Alarms	Array	None	The list of alert rules.
Alarm	None	None	The information of an alert rule.
AlertState	String	OK	The status of the alert rule. Valid values: • OK: No active alerts are triggered based on the alert rule. • ALARM: At least one alert is triggered based on the alert rule. • INSUFFICIENT_DATA: No data is available.
ContactGroups	String	Default alert contacts	The information of the alert contacts.

Parameter	Type	Example	Description
Dimensions	String	{"userId":"4342","instanceId":"212312"}	The dimension map of the monitored resources. The value is a collection of `key-value` pairs. A typical `key-value` pair is `instanceId:XXXXXX`. The `key` and `value` must each be 1 to 64 bytes in length. Excessive bytes are truncated from the string. The `key` and `value` can contain letters, digits, periods (.), hyphens (-), underscores (_), forward slashes (/), and backslashes (\). **Note** If you set `Dimensions` to ordered strings in the request, the value of this parameter is a key-value map expressed by JSON strings.
EffectiveInterval	String	00:00-23:59	The time period during which the alert rule is effective.
EnableState	Boolean	true	Indicates whether enabled or disabled alert rules are queried. Valid values: • true: indicates that enabled alert rules are queried. • false: indicates that disabled alert rules are queried. This parameter is empty by default, which indicates that both enabled and disabled rules are queried.
Escalations	None	None	The conditions that trigger different levels of alerts.
Critical	None	None	The conditions for triggering critical-level alerts.

Parameter	Type	Example	Description
ComparisonOperator	String	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for critical-level alerts. Valid values: • GreaterThanOrEqualToThreshold: greater than or equal to • GreaterThanThreshold: greater than • LessThanOrEqualToThreshold: less than or equal to • LessThanThreshold: less than • NotEqualToThreshold: not equal to • GreaterThanYesterday: greater than the metric value at the same time yesterday • LessThanYesterday: less than the metric value at the same time yesterday • GreaterThanLastWeek: greater than the metric value at the same time last week • LessThanLastWeek: less than the metric value at the same time last week • GreaterThanLastPeriod: greater than the metric value in the last monitoring cycle • LessThanLastPeriod: less than the metric value in the last monitoring cycle
Statistics	String	Average	The statistical method for critical-level alerts.
Threshold	String	90	The threshold for critical-level alerts.
Times	String	3	The consecutive number of times for which the metric value exceeds the threshold for critical-level alerts before a critical-level alert is triggered.
Info	None	None	The conditions for triggering info-level alerts.

Parameter	Type	Example	Description
ComparisonOperator	String	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for info-level alerts. Valid values: • GreaterThanOrEqualToThreshold: greater than or equal to • GreaterThanThreshold: greater than • LessThanOrEqualToThreshold: less than or equal to • LessThanThreshold: less than • NotEqualToThreshold: not equal to • GreaterThanYesterday: greater than the metric value at the same time yesterday • LessThanYesterday: less than the metric value at the same time yesterday • GreaterThanLastWeek: greater than the metric value at the same time last week • LessThanLastWeek: less than the metric value at the same time last week • GreaterThanLastPeriod: greater than the metric value in the last monitoring cycle • LessThanLastPeriod: less than the metric value in the last monitoring cycle
Statistics	String	Average	The statistical method for info-level alerts.
Threshold	String	90	The threshold for info-level alerts.
Times	String	1	The consecutive number of times for which the metric value exceeds the threshold for info-level alerts before an alert is triggered.
Warn	None	None	The conditions for triggering warn-level alerts.

Parameter	Type	Example	Description
ComparisonOperator	String	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for warn-level alerts. Valid values: • GreaterThanOrEqualToThreshold: greater than or equal to • GreaterThanThreshold: greater than • LessThanOrEqualToThreshold: less than or equal to • LessThanThreshold: less than • NotEqualToThreshold: not equal to • GreaterThanYesterday: greater than the metric value at the same time yesterday • LessThanYesterday: less than the metric value at the same time yesterday • GreaterThanLastWeek: greater than the metric value at the same time last week • LessThanLastWeek: less than the metric value at the same time last week • GreaterThanLastPeriod: greater than the metric value in the last monitoring cycle • LessThanLastPeriod: less than the metric value in the last monitoring cycle
Statistics	String	Average	The statistical method for warn-level alerts.
Threshold	String	90	The threshold for warn-level alerts.
Times	String	3	The consecutive number of times for which the metric value exceeds the threshold for warn-level alerts before a warn-level alert is triggered.
GroupId	String	123456	The ID of the application group.
GroupName	String	My application group	The name of the application group. **Note** If the alert rule is associated with an application group, the name of the application group is returned in this parameter.

Parameter	Type	Example	Description
MailSubject	String	An alert occurs	The subject of the alert notification email.
MetricName	String	cpu_total	The name of the metric.
Namespace	String	acs_ecs_dashboard	The namespace of the service.
NoEffectiveInterval	String	00:00-23:59	The time period during which the alert rule is ineffective.
Period	String	60	The statistical period.
Resources	String	[{\"instanceId\":\"i-a2d5q7pm3f9yr29e****\"},{\"instanceId\":\"i-a2d5q7pm3f9yr29e****\"}	The resources that are associated with the alert rule.
RuleId	String	a151cd6023eacee2f0978e03863cc1697c895012****	The ID of the alert rule.
RuleName	String	My alert rule	The name of the alert rule.
SilenceTime	String	86400	The mute period during which new alerts are not reported even if the alert trigger conditions are met. Unit: seconds. Default value: 86400. Minimum value: 3600. Only one alert is reported during each mute period even if the metric value consecutively exceeds the alert rule threshold several times.
SourceType	String	METRIC	The type of the alert rule. Valid values: METRIC: the alert rule for time series metrics. EVENT: the alert rule for event-type metrics. This type was used in earlier versions and has been discarded.
Webhook	String	http://www.aliyun.com	The callback URL.
Message	String	success	The error message.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeMetricRuleList
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Alarms>
    <Alarm>
        <Period>60</Period>
        <Statistics>Average</Statistics>
        <GroupName>Group name</GroupName>
        <Webhook/>
        <Subject>aaabbb</Subject>
        <EffectiveInterval>00:00-23:59</EffectiveInterval>
        <RuleName>My alert rule</RuleName>
        <NoEffectiveInterval/>
        <GroupId>3596360</GroupId>
        <EvaluationCount>3</EvaluationCount>
        <MetricName>cpu_total</MetricName>
        <Threshold>92</Threshold>
        <State>OK</State>
        <Enable>true</Enable>
        <SilenceTime>86400</SilenceTime>
        <Dimensions>[{}]</Dimensions>
        <RuleId>a151cd6023eacee2f0978e03863cc1697c89508e2b61****</RuleId>
        <Namespace>acs_ecs_dashboard</Namespace>
        <ContactGroups>Test</ContactGroups>
        <Escalations>
            <Critical>
                <Statistics>Average</Statistics>
                <Threshold>92</Threshold>
                <Times>3</Times>
                <ComparisonOperator>GreaterThanOrEqualToThreshold</ComparisonOperator>
            </Critical>
            <Info/>
            <Warn/>
        </Escalations>
        <ComparisonOperator>&gt;=</ComparisonOperator>
        <Resources>[{"instanceId":"i-a2d5q7pm3f12****"}]</Resources>
    </Alarm>
    <Alarm>
        <Period>60</Period>
        <Statistics>Average</Statistics>
        <GroupName>demo</GroupName>
        <Webhook/>
        <Subject>${serviceType}-${metricName}-${levelDescription}Notification(${dimensions}
)</Subject>
        <EffectiveInterval>00:00-23:59</EffectiveInterval>
        <RuleName>xxxxxxxxxxxxxxx</RuleName>
```

```
        <NoEffectiveInterval/>
        <GroupId>12345</GroupId>
        <EvaluationCount>3</EvaluationCount>
        <MetricName>cpu_total</MetricName>
        <Threshold>90</Threshold>
        <State>OK</State>
        <Enable>true</Enable>
        <SilenceTime>86400</SilenceTime>
        <Dimensions>[{}]</Dimensions>
        <RuleId>alarmRule_uuid_adbe286748952b82c6a4ebe3a07521697bb706****</RuleId>
        <Namespace>acs_ecs_dashboard</Namespace>
        <ContactGroups>rongfei</ContactGroups>
        <Escalations>
            <Critical>
                <Statistics>Average</Statistics>
                <Threshold>6666</Threshold>
                <Times>3</Times>
                <ComparisonOperator>GreaterThanOrEqualToThreshold</ComparisonOperator>
            </Critical>
            <Info/>
            <Warn/>
        </Escalations>
        <ComparisonOperator>&gt;=</ComparisonOperator>
        <Resources>[{"instanceId":"host-fTcUci7****"}</Resources>
    </Alarm>
</Alarms>
<RequestId>0F05309F-8863-4B2A-8F52-C6AA00E701B4</RequestId>
<Success>true</Success>
<Code>200</Code>
<Total>102</Total>
```

`JSON` format

```
{
 "RequestId":"0F05309F-8863-4B2A-8F52-C6AA00E701B4",
 "Alarms":{
  "Alarm":[
   {
    "Period":60,
    "Statistics":"Average",
    "GroupName":"Group name",
    "Webhook":"",
    "Subject":"aaabbb",
    "EffectiveInterval":"00:00-23:59",
    "RuleName":"My alert rule",
    "NoEffectiveInterval":"",
    "GroupId":"3596360",
    "EvaluationCount":3,
    "MetricName":"cpu_total",
    "State":"OK",
    "Threshold":"92",
    "Enable":true,
    "SilenceTime":86400,
    "Dimensions":"[{}]",
```

```
    "RuleId":"a151cd6023eacee2f0978e03863cc1697c89508e2b61****",
    "Namespace":"acs_ecs_dashboard",
    "ContactGroups":"Test",
    "ComparisonOperator":">=",
    "Escalations":{
     "Critical":{
      "Statistics":"Average",
      "Threshold":"92",
      "Times":3,
      "ComparisonOperator":"GreaterThanOrEqualToThreshold"
     },
     "Info":{},
     "Warn":{}
    },
    "Resources":"[{\"instanceId\":\"i-a2d5q7pm3f12****\"}]"
   },
   {
    "Period":60,
    "Statistics":"Average",
    "GroupName":"demo",
    "Webhook":"",
    "Subject":"${serviceType}-${metricName}-${levelDescription}Notification(${dimensions})"
,
    "EffectiveInterval":"00:00-23:59",
    "RuleName":"xxxxxxxxxxxxxx",
    "NoEffectiveInterval":"",
    "GroupId":"12345",
    "EvaluationCount":3,
    "MetricName":"cpu_total",
    "State":"OK",
    "Threshold":"90",
    "Enable":true,
    "SilenceTime":86400,
    "Dimensions":"[{}]",
    "RuleId":"alarmRule_uuid_adbe286748952b82c6a4ebe3a07521697bb706****",
    "Namespace":"acs_ecs_dashboard",
    "ContactGroups":"rongfei",
    "ComparisonOperator":">=",
    "Escalations":{
     "Critical":{
      "Statistics":"Average",
      "Threshold":"6666",
      "Times":3,
      "ComparisonOperator":"GreaterThanOrEqualToThreshold"
     },
     "Info":{},
     "Warn":{}
    },
    "Resources":"[{\"instanceId\":\"host-fTcUci7****\"}"
   }
  ]
 },
 "Success":true,
 "Code":"200",
```

```
  "Total":102
}
```

1.1.2.7.3.2. PutResourceMetricRule

You can call this operation to configure an alert rule for a performance metric of a resource.

For more information about example values of the cloud service parameters, such as `Namespace`, `MetricName`, and `Dimensions`, that you must set when you configure an alert rule, see Major metrics of Apsara Stack services.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PutResourceMetricRule	The operation that you want to perform. Set the value to PutResourceMetricRule.
ContactGroups	String	Yes	Default contact group	The alert contact group. **Note** Separate multiple groups with commas (,).
MetricName	String	Yes	cpu_total	The name of the metric. **Note** For more information, see Major metrics of Apsara Stack services.
Namespace	String	Yes	acs_ecs_dashboard	The namespace of the service. **Note** For more information, see Major metrics of Apsara Stack services.
Resources	String	Yes	[{"instanceId":"xxxxxx"}]	The resource for which the alert rule is to be configured. **Note** For more information, see `Dimensions` in Major metrics of Apsara Stack services.

Parameter	Type	Required	Example	Description
RuleId	String	Yes	a151cd6023eacee2f0978e03863cc1697c89508****	The ID of the alert rule. **Note** The ID is generated by the caller. You can specify an existing ID to modify the corresponding alert rule or specify a new ID to create an alert rule.
RuleName	String	Yes	My alert rule	The name of the alert rule.
Webhook	String	No	http://ww.aliyun.com	The callback URL to which a POST request is sent when an alert is triggered based on the alert rule.
EffectiveInterval	String	No	00:00-23:59	The time period during which the alert rule is effective.
NoEffectiveInterval	String	No	00:00-06:00	The time period during which the alert rule is ineffective.
SilenceTime	Integer	No	86400	The mute period during which new alerts are not reported even if the alert trigger conditions are met. Unit: seconds. Default value: 86400. **Note** Only one alert is reported during each mute period even if the metric value consecutively exceeds the alert rule threshold several times.
Interval	String	No	60	The interval at which Cloud Monitor checks whether the alert rule is triggered. The default value is the lowest frequency at which the metric is polled. Unit: seconds. **Note** For more information about the frequency at which monitoring data is collected, see DescribeMetricMetaList.

Parameter	Type	Required	Example	Description
EmailSubject	String	No	An alert occurs	The subject of the alert notification email.
Period	String	No	60	The aggregation cycle of monitoring data. The value is an integer multiple of 60. Unit: seconds. The default value is the frequency at which monitoring data is collected.
Escalations.Critical.Statistics	String	No	Average	The statistical method for critical-level alerts.
Escalations.Critical.ComparisonOperator	String	No	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for critical-level alerts. Valid values: • `GreaterThanOrEqualToThreshold`: greater than or equal to • `GreaterThanThreshold`: greater than • `LessThanOrEqualToThreshold`: less than or equal to • `LessThanThreshold`: less than • `NotEqualToThreshold`: not equal to • `GreaterThanYesterday`: greater than the metric value at the same time yesterday • `LessThanYesterday`: less than the metric value at the same time yesterday • `GreaterThanLastWeek`: greater than the metric value at the same time last week • `LessThanLastWeek`: less than the metric value at the same time last week • `GreaterThanLastPeriod`: greater than the metric value in the last monitoring cycle • `LessThanLastPeriod`: less than the metric value in the last monitoring cycle

Parameter	Type	Required	Example	Description
Escalations.Critical.Threshold	String	No	90	The threshold for triggering critical-level alerts.
Escalations.Critical.Times	Integer	No	3	The consecutive number of times for which the metric value exceeds the threshold for critical-level alerts before a critical-level alert is triggered.
Escalations.Warn.Statistics	String	No	Average	The statistical method for warn-level alerts.
Escalations.Warn.ComparisonOperator	String	No	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for warn-level alerts. Valid values: • `GreaterThanOrEqualToThreshold`: greater than or equal to • `GreaterThanThreshold`: greater than • `LessThanOrEqualToThreshold`: less than or equal to • `LessThanThreshold`: less than • `NotEqualToThreshold`: not equal to • `GreaterThanYesterday`: greater than the metric value at the same time yesterday • `LessThanYesterday`: less than the metric value at the same time yesterday • `GreaterThanLastWeek`: greater than the metric value at the same time last week • `LessThanLastWeek`: less than the metric value at the same time last week • `GreaterThanLastPeriod`: greater than the metric value in the last monitoring cycle • `LessThanLastPeriod`: less than the metric value in the last monitoring cycle

Parameter	Type	Required	Example	Description
Escalations.Warn.Threshold	String	No	90	The threshold for triggering warn-level alerts.
Escalations.Warn.Times	Integer	No	3	The consecutive number of times for which the metric value exceeds the threshold for warn-level alerts before a warn-level alert is triggered.
Escalations.Info.Statistics	String	No	Average	The statistical method for info-level alerts.
Escalations.Info.ComparisonOperator	String	No	GreaterThanOrEqualToThreshold	The comparison operator of the threshold for Info alerts. Valid values: • `GreaterThanOrEqualToThreshold`: greater than or equal to • `GreaterThanThreshold`: greater than • `LessThanOrEqualToThreshold`: less than or equal to • `LessThanThreshold`: less than • `NotEqualToThreshold`: not equal to • `GreaterThanYesterday`: greater than the metric value at the same time yesterday • `LessThanYesterday`: less than the metric value at the same time yesterday • `GreaterThanLastWeek`: greater than the metric value at the same time last week • `LessThanLastWeek`: less than the metric value at the same time last week • `GreaterThanLastPeriod`: greater than the metric value in the last monitoring cycle • `LessThanLastPeriod`: less than the metric value in the last monitoring cycle
Escalations.Info.Threshold	String	No	90	The threshold for info-level alerts.

Parameter	Type	Required	Example	Description
Escalations.Info.Times	Integer	No	3	The consecutive number of times for which the metric value exceeds the threshold for info-level alerts before an info-level alert is triggered.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Message	String	success	The error message.
RequestId	String	65D50468-ECEF-48F1-A6E1-D952E89D9436	The ID of the request.
Success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=PutResourceMetricRule
&ContactGroups=Default alert group
&MetricName=cpu_total
&Namespace=acs_ecs_dashboard
&Resources=[{"instanceId":"xxxxxxx"}]
&RuleId=a151cd6023eacee2f0978e03863cc1697c89508****
&RuleName=My alert rule
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Code>200</Code>
<Message>success</Message>
<RequestId>65D50468-ECEF-48F1-A6E1-D952E89D9436</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
 "Message":"success",
 "RequestId":"65D50468-ECEF-48F1-A6E1-D952E89D9436",
 "Success":true,
 "Code":"200"
}
```


1.1.2.7.3.3. DescribeMetricRuleCount

Request parameters

Parameter	Type	Required	Example	Description
Action	String	No	DescribeMetricRuleCount	The operation that you want to perform. Set the value to DescribeMetricRuleCount.
MetricName	String	No	cpu_total	The name of the metric. You can call the DescribeMetricMetaList operation to query metric names.
Namespace	String	No	acs_ecs_dashboard	The namespace of the service. You can call the DescribeMetricMetaList operation to query namespaces.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. The status code 200 indicates that the call was successful.
Message	String	success	The error message.
MetricRuleCount	None	None	The number of alert rules in each state.
Alarm	Integer	5	The number of alert rules based on which alerts were triggered and not cleared.
Disable	Integer	0	The number of disabled alert rules.

Parameter	Type	Example	Description
Nodata	Integer	0	The number of alert rules for which status data is unavailable.
Ok	Integer	40	The number of alert rules that do not have active alerts triggered.
Total	Integer	45	The total number of alert rules.
RequestId	String	FF38D33A-67C1-40EB-AB65-FAEE51EDB644	The ID of the request, which can be used for troubleshooting.
Success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeMetricRuleCount
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeMetricRuleCountResponse>
      <Success>true</Success>
      <Code>200</Code>
      <RequestId>FF38D33A-67C1-40EB-AB65-FAEE51EDB644</RequestId>
      <MetricRuleCount>
            <Ok>40</Ok>
            <Disable>0</Disable>
            <Total>45</Total>
            <Nodata>0</Nodata>
            <Alarm>5</Alarm>
      </MetricRuleCount>
</DescribeMetricRuleCountResponse>
```

`JSON` format

```
{
 "RequestId":"FF38D33A-67C1-40EB-AB65-FAEE51EDB644",
 "Success":true,
 "Code":"200",
 "MetricRuleCount":{
  "Ok":40,
  "Disable":0,
  "Nodata":0,
  "Total":45,
  "Alarm":5
 }
}
```


1.1.2.7.3.4. DeleteMetricRules

You can call this operation to delete one or more alert rules.

Request parameters

Parameter	Type	Required	Example	Description
Id.N	RepeatList	Yes	ab05733c97b7ce239fb1b53393dc1697c7e12****	The ID of the alert rule.
Action	String	No	DeleteMetricRules	The operation that you want to perform. Set the value to DeleteMetricRules.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. The status code 200 indicates that the call was successful.
Message	String	success	The error message.
RequestId	String	E5599964-8D0D-40DC-8E90-27A619384B81	The ID of the request, which can be used for troubleshooting.
Success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteMetricRules
&Id.1=ab05733c97b7ce239fb1b53393dc1697c7e12****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteMetricRulesResponse>
      <Code>200</Code>
      <Message>success</Message>
      <RequestId>FF38D33A-67C1-40EB-AB65-FAEE51EDB644</RequestId>
      <Success>true</Success>
</DeleteMetricRulesResponse>
```

`JSON` format

```
{
 "Message":"success",
 "RequestId":"E5599964-8D0D-40DC-8E90-27A619384B81",
 "Success":true,
 "Code":"200"
}
```

1.1.2.7.3.5. EnableMetricRules

Enables one or more alert rules.

Debugging

OpenAPI Explorer automatically calculates the signature value. For your convenience, we recommend that you call this operation in OpenAPI Explorer. OpenAPI Explorer dynamically generates the sample code of the operation for different SDKs.

Request parameters

Parameter	Type	Required	Example	Description
RuleId.N	RepeatList	Yes	ab05733c97b7ce239fb1b53393dc1697c123****	The ID of the alert rule.
Action	String	No	EnableMetricRules	The operation that you want to perform. Set the value to EnableMetricRules.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. The status code 200 indicates that the call was successful.
Message	String	success	The returned message.
RequestId	String	FF38D33A-67C1-40EB-AB65-FAEE51EDB644	The ID of the request.
Success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=EnableMetricRules
&RuleId.1=ab05733c97b7ce239fb1b53393dc1697c123****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<EnableMetricRulesResponse>
      <Code>200</Code>
      <Message>success</Message>
      <RequestId>FF38D33A-67C1-40EB-AB65-FAEE51EDB644</RequestId>
      <Success>true</Success>
</EnableMetricRulesResponse>
```

`JSON` format

```
{
 "Message":"success",
 "RequestId":"FF38D33A-67C1-40EB-AB65-FAEE51EDB644",
 "Success":true,
 "Code":200
}
```

Error codes

For a list of error codes, visit the API Error Center.

For a list of error codes, visit the API Error Center.

1.1.2.7.3.6. DisableMetricRules

You can call this operation to disable one or more alert rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DisableMetricRules	The operation that you want to perform. Set the value to DisableMetricRules.
RuleId.N	RepeatList	Yes	ab05733c97b7ce239fb1b53393dc1697c7e012****	The ID of the alert rule. Valid values of N: 1 to 20.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The HTTP status code. The status code 200 indicates that the call was successful.
Message	String	success	The error message.
RequestId	String	FF38D33A-67C1-40EB-AB65-FAEE51EDB644	The ID of the request, which can be used for troubleshooting.
Success	Boolean	true	Indicates whether the call was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DisableMetricRules
&RuleId.1=ab05733c97b7ce239fb1b53393dc1697c7e012****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DisableMetricRulesResponse>
      <Code>200</Code>
      <Message>success</Message>
      <RequestId>FF38D33A-67C1-40EB-AB65-FAEE51EDB644</RequestId>
      <Success>true</Success>
</DisableMetricRulesResponse>
```

`JSON` format

```
{
 "Message":"success",
 "RequestId":"FF38D33A-67C1-40EB-AB65-FAEE51EDB644",
 "Success":true,
 "Code":"200"
}
```


1.1.2.7.3.7. DescribeAlertingMetricRuleResources

You can call this operation to query the resources that have active alerts triggered based on an alert rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAlertingMetricRuleResources	The operation that you want to perform. Set the value to DescribeAlertingMetricRuleResources.
GroupId	String	No	123456	The ID of the application group.
Page	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.
RuleId	String	No	alerRuleId****	The ID of the alert rule. **Note** You must specify at least one of the `GroupId` and `RuleId` parameters. If you specify both parameters, only entries that meet both conditions are returned.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9B868619-77B4-4623-AD64-6181EA7CF8FA	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the call was successful.
Code	Integer	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Total	Integer	1	The total number of entries returned.
Resources	Array	None	The list of resources to which the alert rule applies.
Resource	None	None	The information of a resource to which the alert rule applies.
Enable	String	true	Indicates whether the alert rule is enabled for the resource.
GroupId	String	123456	The ID of the application group. **Note** If the alert rule is associated with an application group, the ID of the application group is returned in this parameter.
LastAlertTime	String	1554718182000	The last time when an alert was triggered for the resource based on the alert rule. The value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
LastModifyTime	String	1554723762000	The time when the resource was last modified. The value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.

Parameter	Type	Example	Description
MetricValues	String	{"timestamp":1554723720000,"Value":631}	The metric value that triggered the alert based on the alert rule. The value is a JSON string.
Resource	String	userId=1775413231932****,taskId=3****,instanceId=i-bp1a0v6yzqrms01k****	The resource for which an alert was triggered based on the alert rule.
RetryTimes	String	3	The consecutive number of times for which the metric value was measured before an alert was triggered.
RuleId	String	alerRuleId****	The ID of the alert rule.
RuleName	String	cpuAlert	The name of the alert rule.
StartTime	String	1545901080000	The time when the resource was associated with the alert rule. The value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
Threshold	String	400	The alert threshold.
Message	String	success	The error message.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeAlertingMetricRuleResources
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Total>1</Total>
<Resources>
    <Resource>
        <Enable>true</Enable>
        <Resource>userId=12****,instanceId=i-bp1a012****</Resource>
        <RuleId>alerRuleId****</RuleId>
        <RetryTimes>3</RetryTimes>
        <LastAlertTime>1554718182000</LastAlertTime>
        <MetricValues>{"timestamp":1554723720000,"Value":631}</MetricValues>
        <LastModifyTime>1554723762000</LastModifyTime>
        <StartTime>1545901080000</StartTime>
        <RuleName>cpuAlert</RuleName>
        <Threshold>400</Threshold>
        <GroupId>123456</GroupId>
    </Resource>
</Resources>
<Success>true</Success>
```

`JSON` format

```
{
 "Success":true,
 "Total":1,
 "Resources":{
  "Resource":[
   {
    "LastAlertTime":1554718182000,
    "Resource":"userId=12****,instanceId=i-bp1a012****",
    "Threshold":"400",
    "Enable":true,
    "LastModifyTime":1554723762000,
    "RuleId":"alerRuleId****",
    "MetricValues":"{\"timestamp\":1554723720000,\"Value\":631}",
    "RetryTimes":3,
    "StartTime":1545901080000,
    "RuleName":"cpuAlert",
    "GroupId":"123456"
   }
  ]
 }
}
```

1.1.2.7.3.8. DeleteMetricRuleResources

You can call this operation to delete resources associated with an alert rule.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteMetricRuleResources	The operation that you want to perform. Set the value to DeleteMetricRuleResources.
Resources	String	Yes	[{"instanceId":"*****ixxxId1"}]	The resources to be disassociated from the alert rule. The value is a JSON array.
RuleId	String	Yes	rr-bp18017n6iolv****	The ID of the alert rule.

Response parameters

Parameter	Type	Example	Description
RequestId	String	D8A35882-90C6-4F03-BBEB-153C180398EA	The ID of the request.
Success	Boolean	true	Indicates whether the call was successful.
Code	String	200	The HTTP status code. **Note** The status code 200 indicates that the call was successful.
Message	String	success	The error message.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteMetricRuleResources
&Resources=[{"instanceId":"*****ixxxId1"}]
&RuleId=rr-bp18017n6iolv****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>0671A721-0D7A-4F11-BB77-2416325D65AB</RequestId>
<Success>true</Success>
<Message>success</Message>
<Code>200</Code>
```

`JSON` format

```
{
    "Message":"success",
    "RequestId":"0671A721-0D7A-4F11-BB77-2416325D65AB",
    "Success":true,
    "Code":"200"
}
```

1.1.2.8. Parameters related to the MeteringQuery operation

1.1.2.8.1. ECS

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Elastic Compute Service (ECS).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.

Parameter	Name	Description
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
ZoneId	Zone	The ID of the zone where the instance resides.
InstanceType	Instance type	The ECS instance type defines the basic properties of the ECS instance, such as CPU (including CPU model and clock speed) and memory.
InstanceTypeFamily	Instance family	ECS instances are categorized into different instance families based on the business scenarios to which they can be applied. Each instance family is divided into different instance types based on their CPU and memory specifications.
SerialNumber	Serial number	The serial number of the ECS instance.
InstanceNetworkType	Network type	The network type of the instance. Valid values: • Classic • VPC
ExpiredTime	Expiration time	The time when the instance expires.
HostName	Hostname	The hostname of the ECS instance.
Status	Instance status	The status of the instance. Valid values: • Pending: The instance is being created. • Running: The instance is running. • Starting: The instance is being started. • Stopping: The instance is being stopped. • Stopped: The instance is stopped.

Parameter	Name	Description
InstanceName	Instance name	The name of the ECS instance.
PrivateIpAddress	Internal IP address	The private IP address of the instance in a virtual private cloud (VPC). When InstanceNetworkType is set to vpc, this parameter value can consist of multiple IP addresses.
OSName	Operating system name	The name of the operating system installed on the instance.
EipAddress	Elastic IP address (EIP)	The EIPs of the instance.
NatIpAddress	Network translation address	The public or private IP address of the ECS instance.
VpcId	VPC ID	The ID of the VPC.
EipBandwidth	EIP bandwidth	The bandwidth of the EIP associated with the ECS instance.
IoOptimized	Whether I/O optimization is enabled	Indicates whether the instance is I/O optimized.
InternetMaxBandwidthIn	Maximum inbound public bandwidth	Valid values: 1 to 200. Unit: Mbit/s.
GPUAmount	Number of GPUs	The number of GPUs that the GPU-accelerated instance has.
GPUSpec	GPU model	The model of GPUs used by the GPU-accelerated instance.
InstanceBandwidthTx	Maximum outbound internal bandwidth	Unit: KB/s.

Parameter	Name	Description
Memory	Memory	The amount of memory. Unit: MB.
Cpu	Processor	The number of processors.
SysDiskSize	System disk	The size of the system disk. Unit: GB.
DataDiskSize	Data disk size	The size of the data disk. Unit: GB.

1.1.2.8.2. SLB

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Server Load Balancer (SLB).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.

Parameter	Name	Description
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
ChargeType	Billing method	Valid values: • PayByBandwidth • PayByTraffic
StoreSpace	Capacity threshold	The capacity threshold set for the bucket. After the threshold value is exceeded, write operations cannot be performed on the bucket. Unit: GB.
CdnOut	CDN back-to-origin traffic	The traffic sent from OSS to Alibaba Cloud CDN (CDN). Unit: byte.
IntranetIn	Inbound traffic to the internal network	Unit: byte.
ChargedDatasize	Actually billed storage space	The actually billed Infrequent Access (IA) locally redundant storage (LRS) or OSS Archive LRS space. Unit: byte.
GetRequest	Number of GET requests	The number of GET requests that occurred between the specified start time and the specified end time.
RetrievalData	Volume of retrieved data	The volume of retrieved IA or Archive data. Unit: byte.
PutRequest	Number of PUT requests	The number of PUT requests that occurred between the specified start time and the specified end time.

Parameter	Name	Description
IntranetOut	Outbound traffic from the internal network	Unit: byte.
ProcessI	Number of video snapshots	The number of video snapshots.
ProcessImgSize	Volume of processed images	The volume of processed images. Unit: byte.
SelectScanSize	Volume of scanned data	The volume of scanned data that is queried by using the SELECT statement.
NetworkOut	Outbound traffic	The traffic sent from OSS to external networks, which occurred between the specified start time and the specified end time. Unit: byte.
Storage	Volume of stored data	The amount of used Standard LRS storage space. Unit: byte.
NetworkIn	Inbound traffic	The traffic sent from external networks to OSS, which occurred between the specified start time and the specified end time. Unit: byte.
Availability_Average	Average availability value	The average availability obtained from CloudMonitor at the specified end time.
Availability_Maximum	Maximum availability value	The maximum availability value obtained from CloudMonitor at the specified end time.
Availability_Minimum	Minimum availability value	The minimum availability value obtained from CloudMonitor at the specified end time.
MeteringStorageUtilization_Average	Average capacity value	The average capacity value obtained from CloudMonitor at the specified end time. Unit: byte.

Parameter	Name	Description
MeteringStorageUtilization_Maximum	Maximum capacity value	The maximum capacity value obtained from CloudMonitor at the specified end time. Unit: byte.
MeteringStorageUtilization_Minimum	Minimum capacity value	The minimum capacity value obtained from CloudMonitor at the specified end time. Unit: byte.

1.1.2.8.3. OSS

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Object Storage Service (OSS).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the bucket belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the bucket belongs.
ResourceGName	Resource set name	The name of the resource set to which the bucket belongs.
InsId	Bucket ID	The ID of the bucket.
RegionId	Region	The ID of the region where the bucket resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.

Parameter	Name	Description
CreateTime	Bucket creation time	The time when the bucket was created.
ChargeType	Billing method	Valid values: • PayByBandwidth • PayByTraffic
StoreSpace	Capacity threshold	The capacity threshold set for the bucket. After the threshold value is exceeded, write operations cannot be performed on the bucket. Unit: GB.
CdnOut	CDN back-to-origin traffic	The traffic sent from OSS to Alibaba Cloud CDN (CDN). Unit: byte.
IntranetIn	Inbound traffic to the internal network	Unit: byte.
ChargedDatasize	Actually billed storage space	The actually billed Infrequent Access (IA) locally redundant storage (LRS) or OSS Archive LRS space. Unit: byte.
GetRequest	The number of GET requests.	The number of GET requests that occurred between the specified start time and the specified end time.
RetrievalData	Volume of retrieved data	The volume of retrieved IA or Archive data. Unit: byte.
PutRequest	The number of PUT requests.	The number of PUT requests that occurred between the specified start time and the specified end time.
IntranetOut	Outbound traffic from the internal network	Unit: byte.
ProcessI	Number of video snapshots	The number of video snapshots.

Parameter	Name	Description
ProcessImgSize	Volume of processed images	The volume of processed images. Unit: byte.
SelectScanSize	Volume of scanned data	The volume of scanned data that is queried by using the SELECT statement.
NetworkOut	Outbound traffic	The traffic sent from OSS to external networks, which occurred between the specified start time and the specified end time. Unit: byte.
Storage	Volume of stored data	The amount of used Standard LRS storage space. Unit: byte.
NetworkIn	Inbound traffic	The traffic sent from external networks to OSS, which occurred between the specified start time and the specified end time. Unit: byte.
Availability_Average	Average availability value	The average availability obtained from CloudMonitor at the specified end time.
Availability_Maximum	Maximum availability value	The maximum availability value obtained from CloudMonitor at the specified end time.
Availability_Minimum	Minimum availability value	The minimum availability value obtained from CloudMonitor at the specified end time.
MeteringStorageUtilization_Average	Average capacity value	The average capacity value obtained from CloudMonitor at the specified end time. Unit: byte.
MeteringStorageUtilization_Maximum	Maximum capacity value	The maximum capacity value obtained from CloudMonitor at the end time. Unit: byte.

Parameter	Name	Description
MeteringStorageUtilization_Minimum	Minimum capacity value	The minimum capacity value obtained from CloudMonitor at the end time. Unit: byte.

1.1.2.8.4. EIP

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Elastic IP Address (EIP).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the elastic IP address (EIP) belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the EIP belongs.
ResourceGName	Resource set name	The name of the resource set to which the EIP belongs.
InsId	EIP ID	The ID of the EIP.
RegionId	Region	The ID of the region where the EIP resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	EIP creation time	The time when the EIP was created.
PrivateIpAddress	Internal IP address	The IP address that belongs to the CIDR block of the vSwitch.

Parameter	Name	Description
Name	EIP name	The name of the EIP.
ExpiredTime	Expiration time	The time when the EIP expires. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
BandwidthPackageId	ID of the EIP bandwidth plan	The ID of the EIP bandwidth plan.
Status	EIP status	The status of the EIP. Valid values: • Associating: The EIP is being associated with an instance. • Unassociating: The EIP is being disassociated from an instance. • InUse: The EIP is associated with an instance. • Available: The EIP is available.
ISP	Line type	The line type. Valid values: • BGP: BGP (Multi-ISP) lines • BGP_PRO: BGP (Multi-ISP) Pro lines
Mode	Association mode	The mode in which you associate the EIP. Valid values: • NAT: the standard NAT mode • MULTI_BINDED: the Multi-EIP to ENI mode • BINDED: the cut-through mode This parameter is required only when InstanceType is set to NetworkInterface.
BandwidthPackageType	Bandwidth type	The type of the bandwidth. Only CommonBandwidthPackage (an EIP bandwidth plan) is returned.
ChargeType	Billing method	The billing method of the EIP. Valid values: • PrePaid: subscription • PostPaid: pay-as-you-go

Parameter	Name	Description
IpAddress	IP address	The IP address of the EIP.
BindInstanceId	ID of the associated instance	The ID of the instance with which the EIP is associated.
BindInstanceType	The type of the associated instance.	The type of the instance with which the EIP is associated. Valid values: • EcsInstance: an Elastic Compute Service (ECS) instance in a virtual private cloud (VPC) • SlbInstance: a Server Load Balancer (SLB) instance in a VPC • Nat: a NAT gateway. • HaVip: a high-availability virtual IP address (HAVIP) • NetworkInterface: a secondary elastic network interface (ENI).
BindInstanceName	Name of the associated instance	The name of the associated instance.
Bandwidth	Maximum bandwidth value	The maximum bandwidth value of the EIP. Unit: Mbit/s.

1.1.2.8.5. VPC

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Virtual Private Cloud (VPC).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the virtual private cloud (VPC) belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the VPC belongs.

Parameter	Name	Description
ResourceGName	Resource set name	The name of the resource set to which the VPC belongs.
InsId	VPC ID	The ID of the VPC.
RegionId	Region	The ID of the region where the VPC resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	VPC creation time	The time when the VPC was created.
Status	VPC status	The status of the VPC. Valid values: • Pending: The VPC is being configured. • Available: The VPC is available.
CidrBlock	IPv4 CIDR block	The IPv4 CIDR block of the VPC.
VRouterId	Router ID	The ID of the vRouter.
VpcName	VPC name	The name of the VPC.
Ipv6CidrBlock	IPv6 CIDR block	The IPv6 CIDR block of the VPC.
Description	Description	The description of the VPC.
IsDefault	Default VPC	Indicates whether the VPC is the default VPC in the region. Valid values: • true: The VPC is the default VPC in the region. • false: The VPC is not the default VPC in the region.

1.1.2.8.6. ApsaraDB RDS for MySQL

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to ApsaraDB RDS for MySQL.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
DBInstanceDescription	Instance description	The description of the instance.
Category	Instance edition	The edition of the instance. Valid values: • Basic: Basic Edition • HighAvailability: High-availability Edition • AlwaysOn: Cluster Edition • Finance: Enterprise Edition

Parameter	Name	Description
ClassCode	Instance type	The instance type of the instance. Example: rds.mysql.t1.small.
DBType	Engine type	The type of the database. Example: MySQL.
DBVersion	Engine version	The database version. Example: 8.0.
Zone	Zone ID	The zone ID of the instance.
DBInstanceStatus	Instance status	The status of the RDS instance.
DBInstanceType	Instance architecture	The architecture of the instance. Valid values: • Primary: primary instance • Readonly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance
LockMode	Lock mode	The lock mode of the instance. Valid values: • Unlock: The instance is unlocked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked because it has expired. • LockByRestoration: The instance is automatically locked for a rollback. • LockByDiskQuota: The instance is automatically locked because its disk space is used up. • LockReadInstanceByDiskQuota: The instance is a read-only instance and is automatically locked when the disk space is full.
Port	Port number	The internal port of the instance.

Parameter	Name	Description
DBInstanceClassType	Instance family	The instance family of the instance. Valid values: • s: shared instance family • x: general purpose instance family • d: dedicated instance family • h: dedicated host instance family
DBInstanceStorageType	Storage type	The type of storage media that is used by the instance. Valid values: • local_ssd or ephemeral_ssd: local SSD • cloud_ssd: standard SSD • cloud_essd: enhanced SSD
AvailabilityValue	Availability	The availability status of the instance. Unit: %.
IpAddress	IP address	The IP address.
VPCId	VPC ID	The ID of the virtual private cloud (VPC).
BackupStorage	Backup storage	The backup storage. Unit: byte.
NetworkIn	Inbound traffic	The traffic sent from external networks to RDS, which occurred between the specified start time and the specified end time.
NetworkOut	Outbound traffic	The traffic sent from RDS to external networks, which occurred between the specified start time and the specified end time.
Storage	Volume of stored data	The total storage capacity. Unit: byte.
UsedStorage	Used storage	The amount of used storage. Unit: byte.
AccountMaxQuantity	Maximum number of accounts that can be created	The maximum number of accounts that can be created.

Parameter	Name	Description
DBInstanceCPU	Number of CPUs	The number of CPUs that are configured for the instance.
MaxConnections	Maximum number of connections	The maximum number of concurrent connections that are allowed by the instance.
DBInstanceMemory	Memory	The memory capacity of the instance. Unit: MB.
MaxIOPS	Maximum IOPS	The maximum number of I/O requests that the instance can process per second.
DBMaxQuantity	Maximum number of databases that can be created	The maximum number of databases that can be created.
CpuUsage_Maximum	Maximum CPU utilization	The maximum CPU utilization obtained from CloudMonitor at the specified end time.
CpuUsage_Minimum	Minimum CPU utilization	The minimum CPU utilization obtained from CloudMonitor at the specified end time.
DiskUsage_Average	Average disk usage	The average disk usage obtained from CloudMonitor at the specified end time.
DiskUsage_Maximum	Maximum disk usage	The maximum disk usage obtained from CloudMonitor at the specified end time.
DiskUsage_Minimum	Minimum disk usage	The minimum disk usage obtained from CloudMonitor at the specified end time.
IOPSUsage_Average	Average IOPS usage	The average IOPS usage obtained from CloudMonitor at the specified end time.
IOPSUsage_Maximum	Maximum IOPS usage	The maximum IOPS usage obtained from CloudMonitor at the specified end time.

Parameter	Name	Description
IOPSUsage_Minimum	Minimum IOPS usage	The minimum IOPS usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Average	Average memory usage	The average memory usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Maximum	Maximum memory usage	The maximum memory usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Minimum	Minimum memory usage	The minimum memory usage obtained from CloudMonitor at the specified end time.

1.1.2.8.7. Tablestore

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Tablestore.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.

Parameter	Name	Description
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
InstanceType	Instance type	The instance type of the instance. Example: ssd.
TableName	Table name	The name of the table.
InstanceName	Instance name	The name of the instance.
Description	Instance description	The description of the instance.
Status	Instance status	The status of the instance.
Version	Engine version	The database engine version.

1.1.2.8.8. PolarDB-X

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to PolarDB-X.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the cluster belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the cluster belongs.
ResourceGName	Resource set name	The name of the resource set to which the cluster belongs.

Parameter	Name	Description
InsId	Cluster ID	The ID of the cluster.
RegionId	Region	The ID of the region where the cluster resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Cluster creation time	The time when the cluster was created.
Status	Cluster status	The status of the cluster.
Description	Description	The description of the database.
InstanceSpec	Instance type	The instance type of the cluster. Example: drds.sn2.4c16g.8C32G.
ZoneId	Zone ID	The zone ID of the cluster.
MachineType	Cluster machine type	The type of the machine where the cluster is deployed. The value is set to ECS.
Label	Instance label	The label of the cluster. Valid values: • NORMAL: the normal cluster • HAVPC: the high-availability cluster • VPC: the cluster of the VPC type
InstanceSeries	Instance family	The instance family of the cluster. Example: drds.sn2.4c16g/.
VersionAction	Available action for the cluster version	The available actions for the cluster version.

Parameter	Name	Description
Type	Instance architecture	The architecture of the cluster. Valid values: • PRIVATE: the dedicated cluster • PUBLIC: the shared cluster
VpcId	VPC ID	The ID of the virtual private cloud (VPC).
OrderInstanceId	ID of the purchased cluster	The ID of the purchased cluster.
InstRole	Cluster role	The role of the cluster. • MASTER: the primary cluster • SLAVE: the analytic read-only cluster • SLAVE_FLOW: the concurrent read-only cluster
NetworkType	Network type	The network type of the cluster. Valid values: • CLASSIC • VPC
CommodityCode	Commodity code	The commodity code.
IpAddress	IP address	The IP address.

1.1.2.8.9. What is KVStore for Redis?

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to KVStore for Redis.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.

Parameter	Name	Description
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
ConnectionDomain	Private IP address	The private IP address of the instance.
NetworkType	Network type	The network type. Valid values: • CLASSIC • VPC
InstanceStatus	Instance status	The status of the instance.
PackageType	Service plan	The plan type. Valid values: • standard: the standard plan • customized: the custom plan
InstanceType	Instance type	The instance type of the instance.

Parameter	Name	Description
ArchitectureType	Instance architecture	The architecture of the instance. Valid values: • cluster: the cluster architecture • standard: the standard architecture • rwsplit: the read/write splitting architecture
EngineVersion	The engine version.	The database engine version.
ZoneId	Zone ID	The zone ID of the instance.
InstanceClass	Instance type	The instance type of the instance.
InstanceName	Instance name	The name of the instance.
ChargeType	Billing method	The billing method of the instance. Valid values: • PrePaid: subscription • PostPaid: pay-as-you-go
NodeType	Node type	The type of the node. Valid values: • double: master and replica nodes • single: the single replica node
HasRenewChangeOrder	Whether an order for renewal and configuration change that has not taken effect exists	Indicates whether an order for renewal and configuration change that has not taken effect exists. Valid values: • true: yes • false: no
IsRds	Whether the instance is managed by ApsaraDB RDS	Indicates whether the instance is managed by RDS. Valid values: • true: yes • false: no

Parameter	Name	Description
Connections	Connections	The maximum number of connections supported by the instance.
Port	Port number	The service port of the KVStore for Redis instance.
QPS	QPS	The estimated maximum queries per second (QPS).
Capacity	Capacity	The storage capacity of the instance. Unit: MB.
Bandwidth	Bandwidth	The bandwidth of the instance. Unit: MB/s.
ConnectionUsage_Average	Average connection usage	The average connection usage obtained from CloudMonitor at the specified end time.
ConnectionUsage_Maximum	Maximum connection usage	The maximum connection usage obtained from CloudMonitor at the specified end time.
ConnectionUsage_Minimum	Minimum connection usage	The minimum connection usage obtained from CloudMonitor at the specified end time.
FailedCount_Average	Average number of failures	The average number of failures obtained from CloudMonitor at the specified end time.
FailedCount_Maximum	Maximum number of failures	The maximum number of failures obtained from CloudMonitor at the specified end time.
FailedCount_Minimum	Minimum number of failures	The minimum number of failures obtained from CloudMonitor at the specified end time.
IntranetIn_Average	Average write bandwidth	The average write bandwidth obtained from CloudMonitor at the specified end time.
IntranetIn_Maximum	Maximum write bandwidth	The maximum write bandwidth obtained from CloudMonitor at the specified end time.

Parameter	Name	Description
IntranetIn_Minimum	Minimum write bandwidth	The minimum write bandwidth obtained from CloudMonitor at the specified end time.
IntranetInRatio_Average	Average write bandwidth usage	The average write bandwidth usage obtained from CloudMonitor at the specified end time.
IntranetInRatio_Maximum	Maximum write bandwidth usage	The maximum write bandwidth obtained from CloudMonitor at the specified end time.
IntranetInRatio_Minimum	Minimum write bandwidth usage	The minimum write bandwidth obtained from CloudMonitor at the specified end time.
IntranetOut_Average	Average read bandwidth	The average read bandwidth obtained from CloudMonitor at the specified end time.
IntranetOut_Maximum	Maximum read bandwidth	The maximum read bandwidth obtained from CloudMonitor at the specified end time.
IntranetOut_Minimum	Minimum read bandwidth	The minimum read bandwidth obtained from CloudMonitor at the specified end time.
IntranetOutRatio_Average	Average read bandwidth usage	The average read bandwidth usage obtained from CloudMonitor at the specified end time.
IntranetOutRatio_Maximum	Maximum read bandwidth usage	The maximum read bandwidth usage obtained from CloudMonitor at the specified end time.
IntranetOutRatio_Minimum	Minimum read bandwidth usage	The minimum read bandwidth usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Average	Average memory usage	The average memory usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Maximum	Maximum memory usage	The maximum memory usage obtained from CloudMonitor at the specified end time.
MemoryUsage_Minimum	Minimum memory usage	The minimum memory usage obtained from CloudMonitor at the specified end time.

1.1.2.8.10. AnalyticDB for PostgreSQL

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parametersGPDBspecific to AnalyticDB for PostgreSQL.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
EngineVersion	Engine version	The database engine version that is run on the instance.
ZoneId	Zone ID	The zone ID of the instance.
DBInstanceNetType	NIC type	The type of the network interface card (NIC) that is used by the instance.

Parameter	Name	Description
PayType	Billing method	The billing method. Valid values: • PostPaid: pay-as-you-go • PrePaid: subscription
InstanceNetworkType	Network type	The network type of the instance. Valid values: • Classic • VPC
DBInstanceDescription	Instance description	The description of the instance.
Engine	Database engine	The engine of the database.
DBInstanceStatus	Instance status	The status of the instance.
LockMode	Lock mode	The lock mode. • Unlock: The instance is unlocked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked because it has expired. • LockByRestoration: The instance is automatically locked for a rollback. • LockByDiskQuota: The instance is automatically locked because its disk space is used up.
LockReason	Lock reason	The reason why the cluster is locked.
ConnectionMode	Access mode	The access mode of the instance. • Performance: the standard mode • Safety: the safe mode
HostType	Disk type of compute nodes	The disk type of compute nodes. Valid values: • 0: SSD • 1: HDD
DBInstanceClass	Instance type	The instance type of the instance.

Parameter	Name	Description
DBInstanceClassType	Instance family	The instance family. Valid values: • s: shared instance family • x: general purpose instance family • d: dedicated instance family • h: dedicated host instance family
AvailabilityValue	Availability status	The availability status of the instance. Unit: %.
VpcId	VPC ID	The ID of the virtual private cloud (VPC).
Port	Port number	The port number.
DBInstanceDiskMBPS	Disk throughput	The maximum disk throughput of a compute node. Unit: Mbit/s.
MaxConnections	Maximum number of connections	The maximum number of concurrent connections to an instance.
DBInstanceGroupCount	Number of compute nodes	The number of compute nodes.
DBInstanceMemory	Memory	The memory capacity of the instance. Unit: MB.
DBInstanceStorage	Storage	The storage capacity of the instance. Unit: GB.
DBInstanceCpuCores	CPU	The number of CPU cores.

1.1.2.8.11. ApsaraDB for MongoDB

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to ApsaraDB for MongoDB.

Parameter	Name	Description

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
EngineVersion	Engine version	The database engine version.
ZoneId	Zone ID	The zone ID of the instance.
DBInstanceStatus	Instance status	The status of the instance.
DBInstanceClass	Instance type	The instance type. Example: dds.mongo.mid.
DBInstanceType	Instance architecture	The architecture of the instance. Valid values: • replicate: the replica set instance • sharding: the sharded cluster instance

Parameter	Name	Description
LockMode	Lock status	The lock status of the instance. • Unlock: The instance is not locked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked because it has expired. • LockByRestoration: The instance is automatically locked for a rollback. • LockByDiskQuota: The instance is automatically locked because its disk space is used up. • Released: The instance is released. When the instance is in the Released state, it cannot be unlocked. You must use backup data to create a new instance. It may take an extended period of time to create another instance.
ChargeType	Billing method	The billing method of the instance. Valid values: • PrePaid: subscription • Postpaid: pay-as-you-go
NetworkType	Network type	The network type of the instance. Valid values: • Classic • VPC
DBInstanceDescription	Instance name	The name of the instance.
Engine	Database engine	The engine of the database.
VpcId	VPC ID	The ID of the virtual private cloud (VPC).
VSwitchId	vSwitch ID	The ID of the vSwitch to which the instance is connected.
DBInstanceStorage	Storage	The storage capacity of the instance. Unit: GB.

Parameter	Name	Description
Storage	Volume of stored data	The volume of stored data. Unit: byte.
CpuNum	Number of CPUs	The number of CPUs.
MemoryNum	Memory size	The memory size. Unit: GiB.
CPUUtilization_Average	Average CPU utilization	The average CPU utilization obtained from CloudMonitor at the specified end time.
CPUUtilization_Maximum	Maximum CPU utilization	The maximum CPU utilization obtained from CloudMonitor at the specified end time.
CPUUtilization_Minimum	Minimum CPU utilization	The minimum CPU utilization obtained from CloudMonitor at the specified end time.
ConnectionAmount_Average	Average number of connections	The average number of connections obtained from CloudMonitor at the specified end time.
ConnectionAmount_Maximum	Maximum number of connections	The maximum number of connections obtained from CloudMonitor at the specified end time.
ConnectionAmount_Minimum	Minimum number of connections	The minimum number of connections obtained from CloudMonitor at the specified end time.
ConnectionUtilization_Average	Average connection usage	The average connection usage obtained from CloudMonitor at the specified end time.
ConnectionUtilization_Maximum	Maximum connection usage	The maximum connection usage obtained from CloudMonitor at the specified end time.
ConnectionUtilization_Minimum	Minimum connection usage	The minimum connection usage obtained from CloudMonitor at the specified end time.
DiskUtilization_Average	Average disk usage	The average disk usage obtained from CloudMonitor at the specified end time.

Parameter	Name	Description
DiskUtilization_Maximum	Maximum disk usage	The maximum disk usage obtained from CloudMonitor at the specified end time.
DiskUtilization_Minimum	Minimum disk usage	The minimum disk usage obtained from CloudMonitor at the specified end time.
IOPSUtilization_Average	Average IOPS usage	The average IOPS usage obtained from CloudMonitor at the specified end time.
IOPSUtilization_Maximum	Maximum IOPS usage	The maximum IOPS usage obtained from CloudMonitor at the specified end time.
IOPSUtilization_Minimum	Minimum IOPS usage	The minimum IOPS usage obtained from CloudMonitor at the specified end time.
MemoryUtilization_Average	Average memory usage	The average memory usage obtained from CloudMonitor at the specified end time.
MemoryUtilization_Maximum	Minimum memory usage	The minimum memory usage obtained from CloudMonitor at the specified end time.
MemoryUtilization_Minimum	Maximum memory usage	The maximum memory usage obtained from CloudMonitor at the specified end time.
QPS_Average	Average QPS	The average queries per second (QPS) obtained from CloudMonitor at the specified end time.
QPS_Maximum	Maximum QPS	The maximum QPS obtained from CloudMonitor at the specified end time.
QPS_Minimum	Minimum QPS	The minimum QPS obtained from CloudMonitor at the specified end time.

1.1.2.8.12. Message Queue for Apache RocketMQ

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Message Queue for Apache RocketMQ.

Parameter	Name	Description
Pos	Primary key	It consists of the product ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
cluster	Cluster ID	The ID of the cluster.
instanceName	Instance name	The name of the instance.
spInstanceId	Instance ID	The ID of the instance.
independentNaming	Whether a separate namespace is configured	Indicates whether a separate namespace is configured.
instanceType	Instance type	The instance type of the instance.

Parameter	Name	Description
instanceStatus	Instance status	The status of the instance.
topicCapacity	Topic capacity	The number of topics.

1.1.2.8.13. ApsaraDB RDS for PostgreSQL

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to ApsaraDB RDS for PostgreSQL.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.

Parameter	Name	Description
Port	Port number	The internal port number of the instance.
DBInstanceClassType	Instance family	The instance family of the instance. Valid values: • s: shared instance family • x: general purpose instance family • d: dedicated instance family • h: dedicated host instance family
DBInstanceClass	Instance type	The instance type of the instance. Example: rds.mys2.small.
DBInstanceNetType	Internet and internal networks	Indicates whether the instance is connected over the Internet or an internal network. Valid values: • Internet: the Internet • Intranet: internal networks
DBInstanceType	Instance role	The role of the instance. Valid values: • Primary: primary instance • Readonly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance
InstanceNetworkType	Network type	The network type of the instance. Valid values: • Classic • VPC
DBInstanceDescription	Instance description	The description of the instance.
DBType	Database type	The type of the database.
DBVersion	Engine version	The database engine version that is available.
ZoneId	Zone ID	The zone ID of the instance.

Parameter	Name	Description
LockMode	Lock mode	The lock mode of the instance. Valid values: • Unlock: The instance is unlocked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked because it has expired. • LockByRestoration: The instance is automatically locked for a rollback. • LockByDiskQuota: The instance is automatically locked because its disk space is used up. • LockReadInstanceByDiskQuota: The instance is a read-only instance and is automatically locked when the disk space is full.
PayType	Billing method	The billing method of the instance. Valid values: • PostPaid: pay-as-you-go • PrePaid: subscription
ConnectionMode	Access mode	The access mode of the instance. Valid values: • Standard: the standard mode • Safe: the proxy mode
DBInstanceStorageType	Storage type	The type of storage media that is used by the instance. Valid values: • local_ssd or ephemeral_ssd: local SSD • cloud_ssd: standard SSD. • cloud_essd: enhanced SSD
DBInstanceStatus	Instance status	The status of the instance.
AvailabilityValue	Availability status	The availability status of the instance. Unit: %.
IpAddress	IP address	The IP address.
VPCId	VPC ID	The ID of the virtual private cloud (VPC).

Parameter	Name	Description
AccountMaxQuantity	Maximum number of accounts that can be created	The maximum number of accounts that can be created.
DBInstanceCPU	Number of CPUs that are configured for the instance	The number of CPUs that are configured for the instance.
MaxConnections	Maximum number of concurrent connections	The maximum number of concurrent connections that are allowed by the instance.
DBInstanceMemory	Memory	The memory capacity of the instance. Unit: MB.
DBInstanceDiskUsed	Used storage	The used storage. Unit: byte.
MaxIOPS	Maximum IOPS	The maximum number of I/O requests that the instance can process per second.
DBMaxQuantity	Maximum number of databases that can be created	The maximum number of databases that can be created on the instance.
DBInstanceStorage	Storage	The storage capacity of the instance. Unit: GB.

1.1.2.8.14. ApsaraDB RDS for SQL Server

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to ApsaraDB RDS for SQL Server.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.

Parameter	Name	Description
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
DBInstanceDescription	Instance description	The description of the instance.
Category	Instance edition	The edition of the instance. Valid values: • Basic: Basic Edition • HighAvailability: High-availability Edition • AlwaysOn: Cluster Edition • Finance: Enterprise Edition
ClassCode	Instance type	The instance type. Example: mssql.x4.medium.s2.
DBType	Database type	The type of the database.
DBVersion	Engine version	The database engine version.
Zone	Zone	The ID of the zone.

Parameter	Name	Description
LockMode	Lock mode	The lock mode of the instance. Valid values: • Unlock: The instance is unlocked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked because it has expired. • LockByRestoration: The instance is automatically locked for a rollback. • LockByDiskQuota: The instance is automatically locked because its disk space is used up. • LockReadInstanceByDiskQuota: The instance is a read-only instance and is automatically locked when the disk space is full.
DBInstanceStatus	Instance status	The status of the instance.
DBInstanceType	Instance role	The role of the instance. Valid values: • Primary: primary instance • Readonly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance
Port	Port number	The internal port number of the instance.
DBInstanceClassType	Instance family	The instance family. Valid values: • s: shared instance family • x: general purpose instance family • d: dedicated instance family • h: dedicated host instance family
DBInstanceStorageType	Storage type	The type of storage media that is used by the instance. Valid values: • local_ssd or ephemeral_ssd: local SSD • cloud_ssd: standard SSD. • cloud_essd: enhanced SSD

Parameter	Name	Description
AvailabilityValue	Availability status	The availability status of the instance. Unit: %.
IpAddress	IP address	The IP address.
VPCId	VPC ID	The ID of the virtual private cloud (VPC).
BackupStorage	Backup storage	The amount of backup storage. Unit: byte.
IORequest	Number of I/O requests	The number of I/O requests.
NetworkIn	Inbound traffic	The traffic sent from external networks, which occurred between the specified start time and the specified end time.
NetworkOut	Outbound traffic	The traffic sent to external networks, which occurred between the specified start time and the specified end time.
Storage	Volume of stored data	The amount of stored data. Unit: byte.
UsedStorage	Used storage	The amount of used storage space. Unit: byte.
AccountMaxQuantity	Maximum number of accounts that can be created	The maximum number of accounts that can be created.
DBInstanceCPU	Number of CPUs	The number of CPUs that are configured for the instance.
MaxConnections	Maximum number of concurrent connections	The maximum number of concurrent connections.
DBInstanceMemory	Memory	The memory capacity of the instance. Unit: MB.
DBInstanceDiskUsed	Used storage	The used storage. Unit: byte.

Parameter	Name	Description
MaxIOPS	Maximum IOPS	The maximum number of I/O requests that the instance can process per second.
DBMaxQuantity	Maximum number of databases that can be created	The maximum number of databases that can be created on the instance.
DBInstanceStorage	Storage	The storage capacity of the instance. Unit: GB.

1.1.2.8.15. Log Service

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Log Service.

Parameter	Name	Description
Pos	Primary key	It consists of the product ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the logstore belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the logstore belongs.
ResourceGName	Resource set name	The name of the resource set to which the logstore belongs.
InsId	Logstore ID	The ID of the logstore.
RegionId	Region	The ID of the region where the logstore resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.

Parameter	Name	Description
CreateTime	Logstore creation time	The time when the logstore was created.
description	Description	The description of the logstore.
status	Status	The status of the logstore.
ShardSize	Number of active shards	The number of active shards. The number can include decimal places.
OutflowSize	Read traffic	The volume of compressed read traffic of Log Service between the specified start time and the specified end time, and also at the specified start time. Unit byte.
InflowSize	Write traffic	The volume of compressed write traffic of Log Service between the specified start time and the specified end time, and also at the specified start time. Unit byte.
WriteCount	Number of writes	The number of writes to Log Service between the specified start time and the specified end time, and also at the specified start time. Unit byte.
ReadCount	Number of reads	The number of reads from Log Service between the specified start time and the specified end time, and also at the specified start time. Unit byte.
IndexSum	Total index volume	The total volume of indexes occupied by Log Service. Unit: byte.
RawSum	Total data size	The total size of data occupied by Log Service. Unit: byte.
IndexSize	Volume of index data	The volume of index data between the specified start time and the specified end time, and also at the specified start time. Unit byte.

1.1.2.8.16. EBS

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Elastic Block Storage (EBS).

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the EBS device belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the EBS device belongs.
ResourceGName	Resource set name	The name of the resource set to which the EBS device belongs.
InsId	Instance ID	The ID of the EBS device.
RegionId	Region	The ID of the region where the EBS device resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the EBS device was created.
Description	Description	The description of the cloud disk or local disk.

Parameter	Name	Description
DiskCategory	Disk category	The category of the cloud disk or local disk. Valid values: • all: all disk categories • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: enhanced SSD (ESSD) • local_ssd_pro: I/O-intensive local disk • local_hdd_pro: throughput-intensive local disk • ephemeral: retired local disk • ephemeral_ssd: retired local SSD Default value: all.
DiskChargeType	Billing method	The billing method of the cloud disk or local disk. Valid values: • PrePaid: subscription • PostPaid: pay-as-you-go
ExpiredTime	Expiration time	The time when the cloud desktop expires.
ImageId	Image ID	The ID of the image used to create the Elastic Compute Service (ECS) instance. This parameter is empty unless the disk was created from an image. This parameter value remains unchanged throughout the lifecycle of the disk.
Status	Disk status	The status of the disk. Valid values: • In_use • Available • Attaching • Detaching • Creating • ReIniting • All Default value: All.

Parameter	Name	Description
AttachedTime	Attach time	The time when the disk was attached. The time follows the ISO 8601 standard and is displayed in UTC. This parameter is valid only when Status is set to Available.
BindInstanceId	ID of the instance to which the disk was attached	The ID of the instance to which the cloud disk or local disk was attached. This parameter has a value only when Status is set to In_use. Otherwise, the parameter is empty.
Device	Mount point	The mount point of the cloud disk or local disk.
DiskName	Name of the cloud disk or local disk.	The name of the cloud disk or local disk.
Type	Disk type	The type of the cloud disk or local disk. Valid values: • system: system disk • data: data disk
KMSKeyId	ID of the KMS key	The ID of the Key Management Service (KMS) key used by the disk.
DiskSize	Disk size	The size of the cloud disk or local disk. Unit: GiB.

1.1.2.8.17. Snapshots

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to the snapshot feature.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the snapshot belongs.

Parameter	Name	Description
ResourceGId	Resource set ID	The ID of the resource set to which the snapshot belongs.
ResourceGName	Resource set name	The name of the resource set to which the snapshot belongs.
InsId	Snapshot ID	The ID of the snapshot.
RegionId	Region	The region ID of the snapshot.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Snapshot creation time	The time when the snapshot was created.
Status	Snapshot status	The status of the snapshot. Default value: all. Valid values: • progressing: The snapshot is being created. • accomplished: The snapshot is created. • failed: The snapshot fails to be created. • all: This parameter indicates all snapshot states.
Progress	Creation progress	The progress of snapshot creation. Example: 100%.

Parameter	Name	Description
Usage	Whether the snapshot has been used	Indicates whether the snapshot has been used to create images or disks. Valid values: • image: The snapshot has been used to create custom images. • disk: The snapshot has been used to create disks. • image_disk: The snapshot has been used to create custom images and data disks. • none: The snapshot has not been used to create custom images or disks.
Description	Snapshot description	The description of the snapshot.
SnapshotCategory	Snapshot type	The type of the snapshot. Valid values: • standard: normal snapshot • flash: local snapshot
SnapshotName	Snapshot name	The name of the snapshot.
SourceDiskId	Source disk ID	The ID of the source disk.
SourceStorageType	Source disk type	The type of the source disk.
SnapshotSN	Snapshot serial number	The serial number of the snapshot.
LastModifiedTime	Time when the snapshot was last changed	The time when the snapshot was last changed. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
SnapshotType	Type of snapshot creation	The type of snapshot creation. Valid values: • auto or timer: automatically created snapshot • user: manually created snapshot • all: all snapshot types

Parameter	Name	Description
SourceDiskType	Source disk attribute	The attribute of the source disk. The value is set to systemdata.
SourceDiskSize	Source disk size	The size of the system disk. Unit: GB.
RetentionDays	Retention period of the automatic snapshot	The retention period of the automatic snapshot.

1.1.2.8.18. Auto Scaling

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to Auto Scaling.

Parameter	Name	Description
Pos	Primary key	The primary key consists of the service ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the scaling group belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the scaling group belongs.
ResourceGName	Resource set name	The name of the resource set to which the scaling group belongs.
InsId	Scaling group ID	The ID of the scaling group.
RegionId	Region	The ID of the region where the scaling group resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.

Parameter	Name	Description
CreateTime	Scaling group creation time	The time when the scaling group was created.
LifecycleState	Status	The status of the scaling group. Valid values: • Active: The scaling group is active. Active scaling groups can receive requests to execute scaling rules and trigger scaling activities. • Inactive: The scaling group is inactive. Inactive scaling groups cannot receive requests to execute scaling rules. • Deleting: The scaling group is being deleted. Scaling groups that are being deleted cannot receive requests to execute scaling rules and their parameters cannot be modified.
ScalingPolicy	Reclaim mode	Indicates the reclaim mode of the scaling group. Valid values: • recycle: The reclaim mode of the scaling group is set to Shutdown and Reclaim Mode. • release: The reclaim mode of the scaling group is set to Release Mode.
VSwitchId	vSwitch ID	The ID of the vSwitch that is associated with the scaling group.
ScalingGroupName	ScalinggGroup name	The name of the scaling group.
VpcId	VPC ID	The ID of the virtual private cloud (VPC) to which the scaling group belongs.

Parameter	Name	Description
MultiAZPolicy	Multi-zone scaling policy	The Elastic Compute Service (ECS) instance scaling policy for the multi-zone scaling group. Valid values: • PRIORITY: ECS instances are scaled based on the specified vSwitch. When an ECS instance cannot be created in the zone where the vSwitch that has the highest priority resides, the system uses the vSwitch that has the next highest priority to create the instance. • COST_OPTIMIZED: ECS instances are created based on the unit price of vCPU in ascending order. Preemptible instances are preferentially created when preemptible instance types are specified in the active scaling configuration. • BALANCE: ECS instances are evenly distributed in multiple zones specified for the scaling group.
PendingWaitCapacity	Number of instances in the Pending state	The number of ECS instances that are in the Pending state in the scaling group.
TotalCapacity	Total capacity	Indicates the total weighted capacity of all ECS instances in the scaling group if the instance type weight is specified for the scaling group. If the instance type weight is not specified, this parameter indicates the total number of ECS instances in the scaling group.
RemovingWaitCapacity	Number of instances in the Suspending state	The number of ECS instances that are in the Suspending state in the scaling group.
ProtectedCapacity	Number of instances in the Protected state	The number of ECS instances that are in the Protected state in the scaling group.
StandbyCapacity	Number of instances in the Standby state	The number of instances that are in the Standby state in the scaling group.
RemovingCapacity	Number of instances in the Removing state	The number of ECS instances that are in the Removing state in the scaling group.

Parameter	Name	Description
PendingCapacity	Number of instances in the Adding state	The number of ECS instances that are being added to the scaling group and are still being configured.
ActiveCapacity	Number of instances in the In Service state	The number of ECS instances that have been added to the scaling group and are running normally.
StoppedCapacity	Number of stopped instances	The number of instances that are in the Stopped state in the scaling group.
MaxSize	Maximum number of instances	The maximum number of ECS instances in the scaling group.
MinSize	Minimum number of instances	The minimum number of ECS instances in the scaling group.
DefaultCooldown	Default cooldown time	The default cooldown time of the scaling group. Unit: seconds. During the cooldown time, Auto Scaling executes only scaling activities that are triggered by CloudMonitor event-triggered tasks.

1.1.2.8.19. API Gateway

After you call the MeteringQuery operation to obtain statistical data, common response parameters and service-specific response parameters are returned. This topic describes the response parameters specific to API Gateway.

Parameter	Name	Description
Pos	Primary key	It consists of the product ID, organization ID, and start time.
OrgName	Organization name	The name of the organization to which the instance belongs.
ResourceGId	Resource set ID	The ID of the resource set to which the instance belongs.

Parameter	Name	Description
ResourceGName	Resource set name	The name of the resource set to which the instance belongs.
InsId	Instance ID	The ID of the instance.
RegionId	Region	The ID of the region where the instance resides.
StartTime	Start time	The beginning of the time range to query. The time is displayed in UTC.
EndTime	End time	The end of the time range to query. The time is displayed in UTC.
CreateTime	Instance creation time	The time when the instance was created.
ApiName	API name	The name of the API.
GroupId	API group ID	The ID of the specified API group.
GroupName	API group name	The name of the specified API group.
Visibility	Type	The type of the API.

2.Elastic Compute Service (ECS)

2.1. Developer Guide

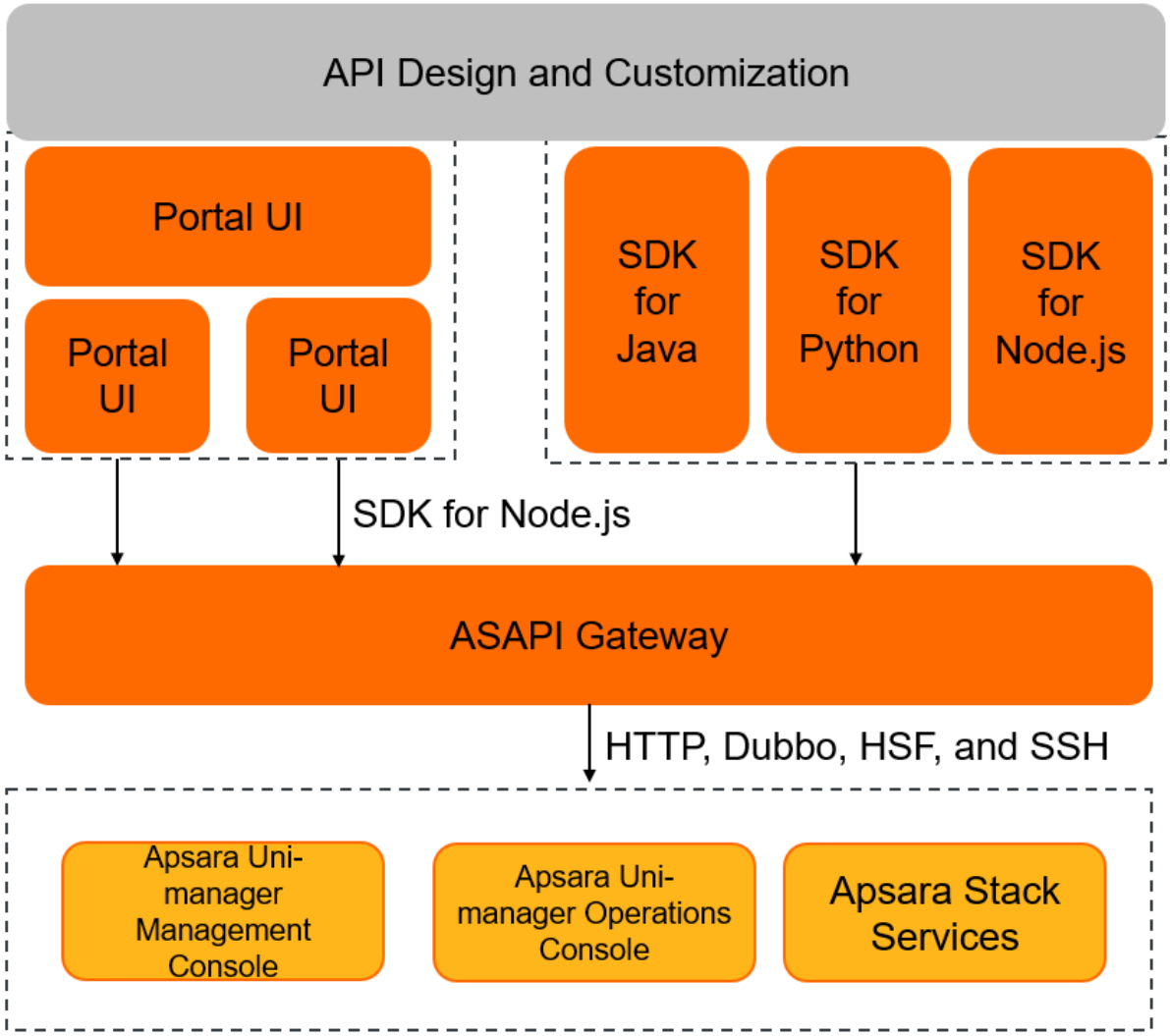
2.1.1. Call ECS SDK by using ASAPI

2.1.1.1. 文档标题缺失，请补全后重新导出

2.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

2.1.1.1.2. Preparations

2.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

2.1.1.1.2.2. View information about API operations

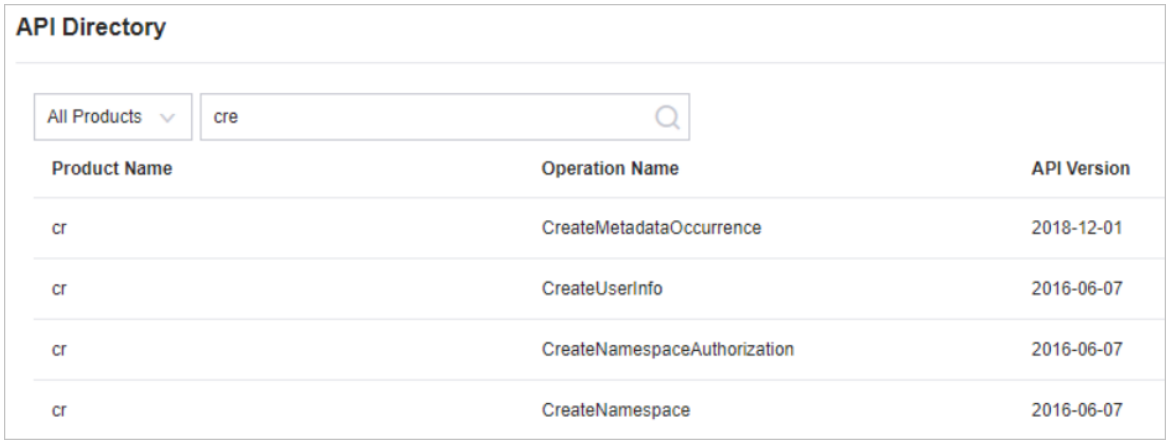
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



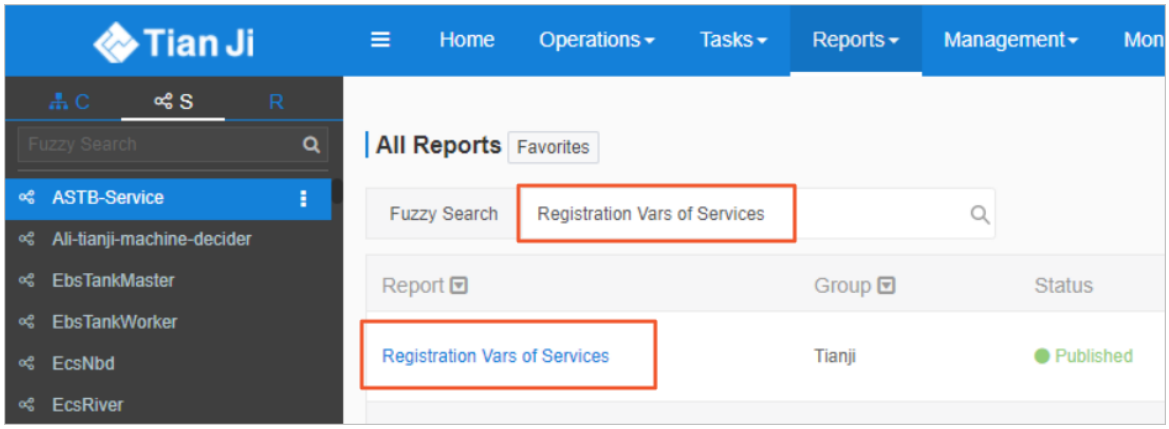
4. Then, you can view the service name, API operation name, and API operation version.

2.1.1.1.2.3. Generate an endpoint for the ASAPI

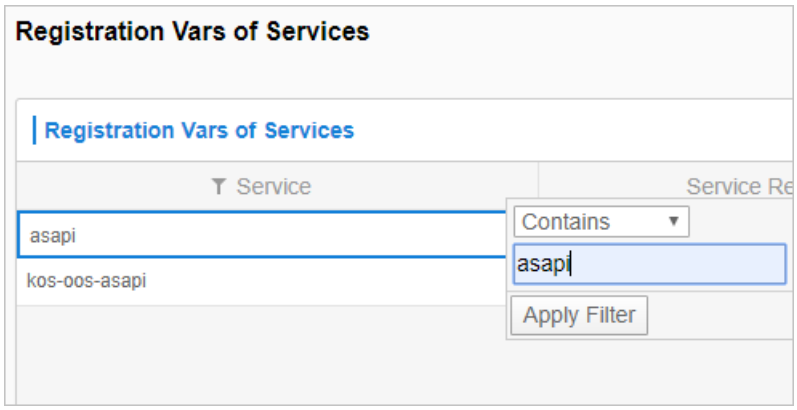
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

2.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

2.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

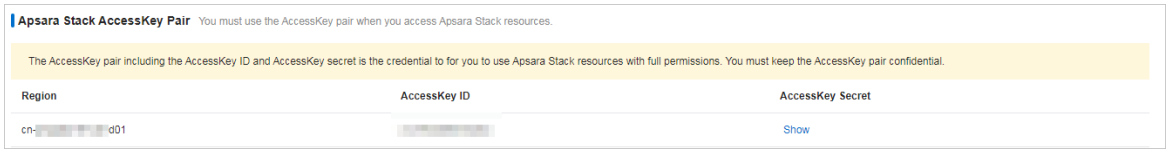
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

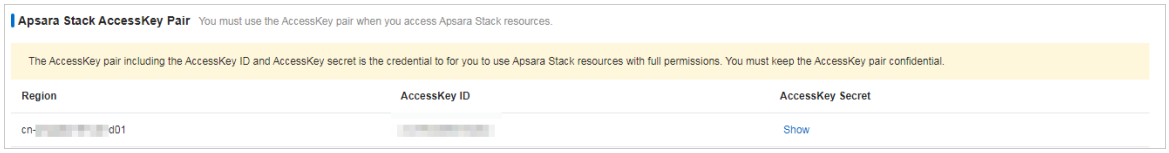
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

2.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



2.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

2.1.1.1.4. SDK description

2.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

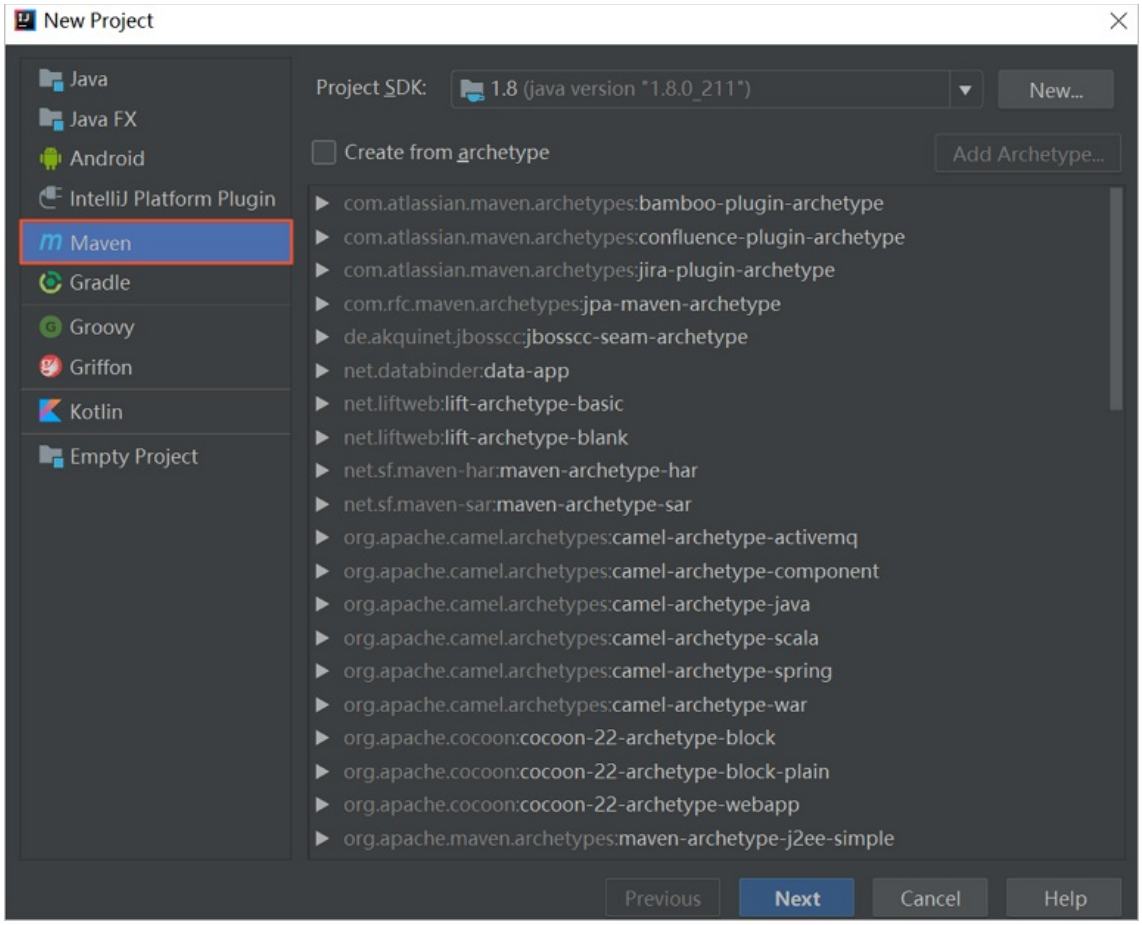
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

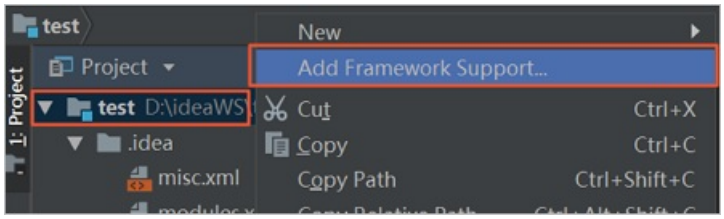
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

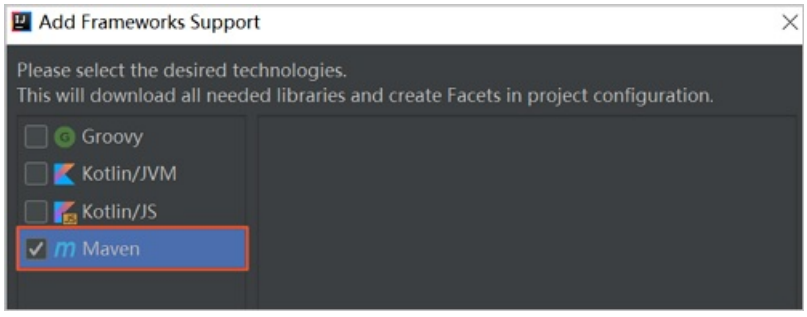
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



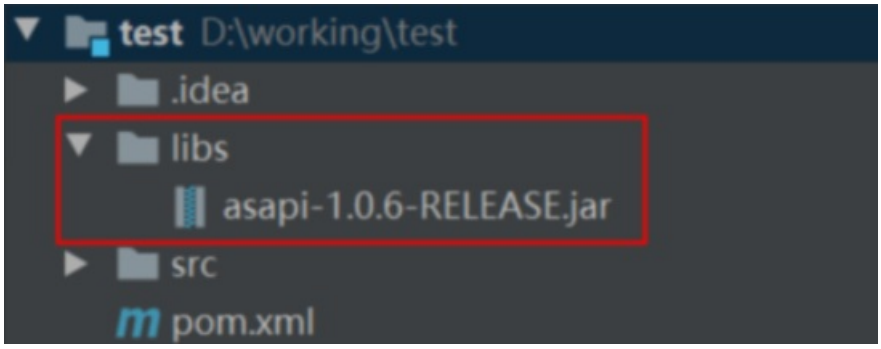
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



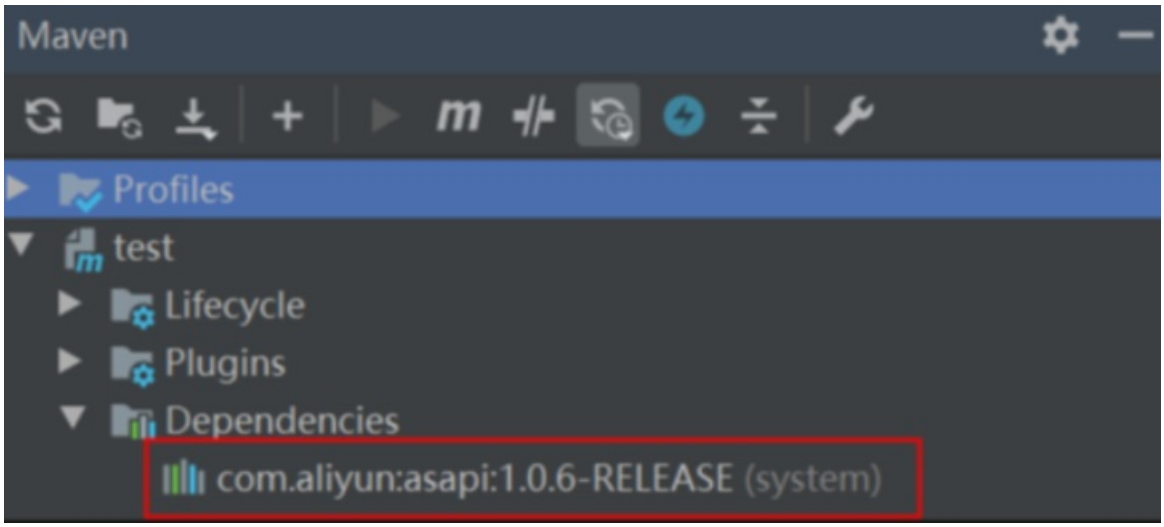
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

2.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

2.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

2.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

2.1.1.1.5. HTTP requests

2.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

2.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

2.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

2.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

2.1.2. API reference

2.1.2.1. ECS API

2.1.2.1.1. Make API requests

2.1.2.1.1.1. Overview

You can call an operation by sending an HTTP GET request to the ECS endpoint. You must specify the relevant request parameters in the request based on the operation descriptions. The system returns the processing result of the request. Requests and responses are encoded using UTF-8.

2.1.2.1.1.2. Request structure

Endpoints

For information about how to obtain the service endpoint, see Obtain the endpoint of ASAPI.

Methods

You can use the HTTP GET method to send the request for calling an API operation. If you use this method, the request parameters must be included in the URL of the request.

Protocols

You can send requests over HTTP or HTTPS. For security considerations, we recommend that you send requests over HTTPS.

Request parameters

For each request, you must specify the Action parameter (example: StartInstance), common request parameters, and operation-specific request parameters.

Encoding

All requests and responses are encoded in UTF-8.

2.1.2.1.1.3. Authorization

To ensure the security of your account, we recommend that you call ECS API operations as a RAM user. Before you can call ECS API operations as a RAM user, you must create and authorize the RAM user.

In RAM, you can authorize the RAM user to perform the following API operations on an ECS resource:

- AttachDisk
- AuthorizeSecurityGroup
- CreateDisk
- CreateImage
- CreateInstance
- CreateSecurityGroup
- CreateSnapshot
- DeleteDisk
- DeleteImage
- DeleteInstance
- DeleteSecurityGroup
- DeleteSnapshot
- DescribeAutoSnapshotPolicy
- DescribeDisks

- DescribeImages
- DescribeInstanceMonitorData
- DescribeInstances
- DescribeInstanceStatus
- DescribeInstanceTypes
- DescribeRegions
- DescribeSecurityGroupAttribute
- DescribeSecurityGroups
- DescribeSnapshots
- DescribeZones
- DetachDisk
- JoinSecurityGroup
- LeaveSecurityGroup
- ModifyAutoSnapshotPolicy
- ModifyDiskAttribute
- ModifyInstanceAttribute
- ModifyInstanceNetworkSpec
- RebootInstance
- ReplaceSystemDisk
- ReInitDisk
- ResetDisk
- RevokeSecurityGroup
- StartInstance
- StopInstance

2.1.2.1.1.4. Request signatures

You must sign all API requests to ensure security. ECS uses the request signature to verify the identity of the API caller

ECS implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Apsara Stack tenant accounts and RAM users that is similar to a logon username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

Perform the following steps to sign an access request:

1. Create a canonicalized query string by using request parameters.

i. Arrange all the request parameters (including all common and operation-specific request parameters except Signature) in alphabetical order.

> **Note** If you use the GET method to make the request, these parameters are connected by ampersands (&) and included in the request URI. The first request parameter follows the question mark (?).

ii. Encode all the request parameters. URL encode all the request parameter names and values in UTF-8 based on the following rules:

- Uppercase letters, lowercase letters, digits, and some special characters such as ampersands (&), hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
- Other characters must be percent encoded in the %XY format. XY represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as %22.
- Extended UTF-8 characters are encoded in the %XY%ZA... format.
- Spaces must be encoded as %20. Do not encode spaces as plus signs (+).

This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithms, such as java.net.URLEncoder in the Java standard library. You can encode the parameter names and values by using the encoding method in the Java standard library. Then in the encoded string, replace the plus signs (+) with %20, asterisks (*) with %2A, and %7E with tildes (~) to obtain an encoded string that complies with the preceding encoding rules. You can use the following percentEncode method to implement the encoding:

```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingExcep
tion {
    return value ! = null ? URLEncoder.encode(value, ENCODING).replace("+", "%20")
.replace("*", "%2A").replace("%7E", "~") : null;
 }
```

iii. Use equal signs (`=`) to connect the encoded parameter names and values.

iv. Sort the connected parameter name-value pairs in the order specified in Step 1.i and connect these pairs with ampersands (&) to obtain a canonicalized query string.

2. Create a string-to-sign from the encoded canonicalized query string based on the following rules:

```
StringToSign=
    HTTPMethod + "&" +
    percentEncode("/") + "&" +
     percentEncode(CanonicalizedQueryString)
```

- HTTPMethod: the HTTP method used to make the request, such as GET.
- percentEncode(“/”): Encode backslashes (/) as %2F.
  percentEncode(CanonicalizedQueryString): Encode the canonicalized query string created in Step 1.ii.

3. Calculate the RFC 2104-compliant HMAC value of the string-to-sign.

> **Note** Use the SHA1 algorithm to calculate the HMAC value of the string-to-sign. The AccessKey secret to which an ampersand (&) (ASCII:38) is appended is used as the key for HMAC calculation.

4. Encode the HMAC value in Base64 to obtain the signature string.
5. Add the signature string to the request as the Signature parameter. The result is the signed API request.

> **Note** When the signature string is submitted to ECS as the final request parameter value, the value must be URL-encoded like other parameters based on rules defined in RFC 3986.

DescribeRegions is used in this example. Assume that the AccessKey ID is *testid* and the AccessKey secret is *testsecret*. The following URL is the request URL to be signed:

```
http://ecs.example.com/?TimeStamp=2016-02-23T12:46:24Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-SHA1&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82f****&Version=2014-05-26&SignatureVersion=1.0
```

The following code is the calculated string-to-sign (StringToSign):

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DDescribeRegions%26Format%3DXML%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82f****%26SignatureVersion%3D1.0%26TimeStamp%3D2016-02-23T12%253A46%253A24Z%26Version%3D2014-05-26
```

The AccessKey secret is *testsecret*, so the key used for the HMAC calculation is *testsecret&* and the calculated signature string is *CT9X0VtwR86fNWSnsc6v8YG****.

In the original API request, set the value of Signature to the calculated signature string. The following signed request URL is obtained:

```
http://ecs.example.com/?SignatureVersion=1.0&Action=DescribeRegions&Format=XML&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82f****&Version=2014-05-26&AccessKeyId=testid&Signature=CT9X0VtwR86fNWSnsc6v8YGO****&SignatureMethod=HMAC-SHA1&TimeStamp=2016-02-23T12%3A46%3A24Z
```

2.1.2.1.1.5. Responses

API responses use a unified format. 2xx HTTP status codes indicate successful calls. 4xx or 5xx HTTP status codes indicate failed calls. Responses can be returned in XML or JSON format. By default, responses are returned in XML format. You can specify the response format in the request of an API call.

> **Note** To improve readability, the sample responses in this topic are formatted. The actual responses are not formatted with line breaks or indentation.

Successful response examples

- XML format

```
<? xml version="1.0" encoding="UTF-8"? >
<! --Result root node-->
<API name+Response>
    <! --Returned request tag-->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! --Returned results-->
</API name+Response>
```

- JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /*Returned results*/
}
```

Error response examples

If an error occurs when you call an operation, the requested data will not be returned. You can troubleshoot the error based on the error code specific to the operation and the common errors. If the operation fails to be called, a 4xx or 5xx HTTP status code will be returned. The response body contains the error code, the error message, a unique request ID, and the ID of the site accessed by the request.

- XML format

```
<? xml version="1.0" encoding="UTF-8"? >
<Error>
   <RequestId>8906582E-6722-409A-A6C4-0E7863B733A5</RequestId>
   <HostId>ecs.example.com</HostId>
   <Code>InvalidOwnerId</Code>
   <Message>The specified OwnerId is not valid. </Message>
</Error>
```

- JSON format

```
{
    "RequestId": "8906582E-6722-409A-A6C4-0E7863B733A5",
    "HostId": "ecs.example.com",
    "Code": "InvalidOwnerId",
    "Message": "The specified OwnerId is not valid."
}
```

2.1.2.1.2. RAM authorization

When you call an ECS API operation to access the ECS resources in your Apsara Stack tenant account as a RAM user, ECS checks with RAM whether the RAM user has the permissions on these resources.

ECS determines which permissions to check based on the involved resources and the semantics of the API operation. Resources involved in ECS API operations describes the resources involved in each ECS API operation.

Resources involved in ECS API operations

Action	Resource
AttachDisk	acs:ecs:$regionid:$accountid:disk/$diskid acs:ecs:$regionid:$accountid:instance/$instanceid
AuthorizeSecurityGroup	acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid[and acs:ecs:$regionid:$accountid:securitygroup/$sourcegroupid] **Note** If you specify the SourceGroupId parameter in the API request, you must specify the sourcegroupid variable.
CreateDisk	acs:ecs:$regionid:$accountid:disk/*[and acs:ecs:$regionid:$accountid:snapshot/$snapshotid] **Note** If you specify the SnapshotId parameter in the API request, you must specify the snapshotid variable.
CreateImage	acs:ecs:$regionid:$accountid:image/*acs:ecs:$regionid:$accountid:snapshot/$snapshotid
CreateInstance	acs:ecs:$regionid:$accountid:instance/*acs:ecs:$regionid:$accountid:securitygroup/$securitygroupidacs:ecs:$regionid:$accountid:image/$imageid[and acs:ecs:$regionid:$accountid:snapshot/$snapshotid] **Note** If you specify the DataDisk.N.SnapshotId parameter in the API request, you must specify the snapshotid variable.
CreateSecurityGroup	acs:ecs:$regionid:$accountid:securitygroup/*
CreateSnapshot	acs:ecs:$regionid:$accountid:disk/$diskid acs:ecs:$regionid:$accountid:snapshot/*
DeleteDisk	acs:ecs:$regionid:$accountid:disk/$diskid
DeleteImage	acs:ecs:$regionid:$accountid:image/$imageid
DeleteInstance	acs:ecs:$regionid:$accountid:instance/$instanceid
DeleteSecurityGroup	acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid
DeleteSnapshot	acs:ecs:$regionid:$accountid:snapshot/$snapshotid
DescribeAutoSnapshotPolicy	acs:ecs:*:$accountid:snapshot/*
DescribeDisks	acs:ecs:$regionid:$accountid:disk/*
DescribeImages	acs:ecs:$regionid:$accountid:image/*
DescribeInstanceMonitorData	acs:ecs:$regionid:$accountid:instance/$instanceid

Action	Resource
DescribeInstanceStatus	acs:ecs:$regionid:$accountid:instance/*
DescribeInstanceTypes	acs:ecs:*:$accountid:*
DescribeRegions	acs:ecs:*:$accountid:*
DescribeSecurityGroupAttribute	acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid
DescribeSecurityGroups	acs:ecs:$regionid:$accountid:securitygroup/*
DescribeSnapshots	acs:ecs:$regionid:$accountid:snapshot/*
DescribeZones	acs:ecs:*:$accountid:*
DetachDisk	acs:ecs:$regionid:$accountid:disk/$diskid acs:ecs:$regionid:$accountid:instance/$instanceid
JoinSecurityGroup	acs:ecs:$regionid:$accountid:instance/$instanceid acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid
LeaveSecurityGroup	acs:ecs:$regionid:$accountid:instance/$instanceid acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid
ModifyAutoSnapshotPolicy	acs:ecs:*:$accountid:snapshot/*
ModifyDiskAttribute	acs:ecs:$regionid:$accountid:disk/$diskid
ModifyInstanceAttribute	acs:ecs:$regionid:$accountid:instance/$instanceid
ModifyInstanceNetworkSpec	acs:ecs:$regionid:$accountid:instance/$instanceid
RebootInstance	acs:ecs:$regionid:$accountid:instance/$instanceid
ReplaceSystemDisk	acs:ecs:$regionid:$accountid:instance/$instanceid[and acs:ecs:$regionid:$accountid:image/$imageid] **Note** If you want to use a custom image, you must specify the imageid variable.
ReInitDisk	acs:ecs:$regionid:$accountid:disk/$diskid
ResetDisk	acs:ecs:$regionid:$accountid:snapshot/$snapshotid acs:ecs:$regionid:$accountid:disk/$diskid

Action	Resource
RevokeSecurityGroup	acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid[and acs:ecs:$regionid:$accountid:securitygroup/$sourcegroupid] **Note** If you specify the SourceGroupId parameter in the API request, you must specify the sourcegroupid variable.
StartInstance	acs:ecs:$regionid:$accountid:instance/$instanceid
StopInstance	acs:ecs:$regionid:$accountid:instance/$instanceid
DescribeInstances	acs:ecs:$regionid:$accountid:instance/*
CreateVpc	acs:ecs:$regionid:$accountid:vpc/*
ModifyVpcAttribute	acs:ecs:$regionid:$accountid:vpc/$vpcid
DescribeVRouters	acs:ecs:$regionid:$accountid:vrouter/*
CreateVSwitch	acs:ecs:$regionid:$accountid:vswitch/*
CreateRouteTable	acs:ecs:$regionid:$accountid:routetable/*
CreateRouteEntry	acs:ecs:$regionid:$accountid:routetable/$routetableid
AllocateEipAddress	acs:ecs:$regionid:$accountid:eip/*
AssociateEipAddress	acs:ecs:$regionid:$accountid:eip/$allocationid acs:ecs:$regionid:$accountid:instance/$instanceid
ReleaseEipAddress	acs:ecs:$regionid:$accountid:eip/$allocationid
DescribeVpcs	acs:ecs:$regionid:$accountid:vpc/*
DeleteVpc	acs:ecs:$regionid:$accountid:vpc/$vpcid
ModifyVRouterAttribute	acs:ecs:$regionid:$accountid:vrouter/$vrouterid
DescribeVSwitches	acs:ecs:$regionid:$accountid:vswitch/*
DeleteVSwitch	acs:ecs:$regionid:$accountid:vswitch/$vswitchid
DescribeRouteTables	acs:ecs:$regionid:$accountid:routetable/*
DeleteRouteEntry	acs:ecs:$regionid:$accountid:routetable/$routetableid
DescribeEipAddresses	acs:ecs:$regionid:$accountid:eip/*
UnassociateEipAddresses	acs:ecs:$regionid:$accountid:eip/$eipid acs:ecs:$regionid:$accountid:instance/$instanceid

Action	Resource
ModifySecurityGroupAttribute	acs:ecs:$regionid:$accountid:securitygroup/$securitygroupid
DescribeEipMonitorData	acs:ecs:$regionid:$accountid:eip/$allocationid
ModifyVSwitchAttribute	acs:ecs:$regionid:$accountid:vswitch/$vswitchid
DescribeInstanceVncUrl	acs:ecs:$regionid:$accountid:instance/$instanceid
ModifySnapshotAttribute	acs:ecs:$regionid:$accountid:snapshot/$snapshotid
ModifyInstanceVpcAttribute	acs:ecs:$regionid:$accountid:instance/$instanceid
ModifyEipAddressAttribute	acs:ecs:$regionid:$accountid:eip/$allocationid
DescribeDiskMonitorData	acs:ecs:$regionid:$accountid:disk/$diskid

2.1.2.1.3. Common parameters

Common parameters include common request parameters and common response parameters.

Common request parameters

Common request parameters must be included in all ECS API requests.

Request parameter description

Parameter	Type	Required	Description
Format	String	No	The format to return the response values in. Valid values: JSON and XML. Default value: XML.
Version	String	Yes	The version number of the API in the format of YYYY-MM-DD. **Note** Access *http://gitlab.alibaba-inc.com/apsara_stack/APIVersionController/blob/v3.5*, find a specific service, open the API under the OpenAPI folder of the service, and view the corresponding API version. The current version is 2014-05-26.
AccessKeyId	String	Yes	The AccessKey ID provided to you by Alibaba Cloud.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1.

Parameter	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format. The time must be in UTC.
SignatureVersion	String	Yes	The version of the signature encryption algorithm.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
ResourceOwnerAccount	String	No	The owner account (the logon username) of the resource to be accessed through this API request. You must use this parameter in operations where ECS resources can be authorized in the RAM console. Otherwise, the request is rejected.

Examples

```
https://ecs.example.com/
? Format=xml
&Version=2014-05-26
&Signature=Pc5WB8gokVn0xfeu%2FZV%2BiNM1****
&SignatureMethod=HMAC-SHA1
&SignatureNonce=1521552885****
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
...
```

Common response parameters

Each time you send a request to call an API, the system returns a unique identifier RequestId, regardless of whether the call is successful.

Examples

- XML format

```
<?xml version="1.0" encoding="UTF-8"? >
<!--Result Root Node-->
<Interface Name+Response>
    <!--Return Request Tag-->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <!--Return Result Data-->
</Interface Name+Response>
```

- JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /* Return Result Data */
}
```

2.1.2.1.4. Instances

2.1.2.1.4.1. RunInstances

You can call this operation to create one or more ECS instances.

Description

- **Prerequisites**:
  - Instance type: You can call the DescribeInstanceTypes operation to query the performance data of instance types.
  - Available resource: You can call the DescribeAvailableResource operation to query available resources in a specific region or zone.
  - Network planning: Security groups are created. For more information, see CreateSecurityGroup in ECS Developer Guide. Before you create a VPC-type instance in a region, you must first create a VPC in that region.
- **Precautions**:
  - You can create a maximum of 100 instances at a time.
  - You can use the `AutoReleaseTime` parameter to set the automatic release time of the created instances.
  - After an instance is created, you can call the DescribeInstances operation to check the status of the instance.
  - Instances automatically start after they are created. Instances are ready for use when they are in the Running (`Running`) state.
  - After you call this operation, an error is returned if parameters are invalid or available resources are insufficient. For more information, see the "Error codes" section of this topic.
- **Best practices**:
  - You can call the `RunInstances` operation to create multiple instances at a time. To make it easy to manage and search for the created instances, we recommend that you specify tag key-value pairs (`Tag.N.Key` and `Tag.N.Value`) for the instances, and append sequential suffixes (`UniqueSuffix`) to the hostnames (`HostName`) and instance names (`InstanceName`).
  - A launch template contains parameters required to create an instance so that you do not have to specify these parameters every time you create an instance. You can call the CreateLaunchTemplate operation to create a launch template. Then, in your request to call the `RunInstances` operation, you can specify the `LaunchTemplateId` and `LaunchTemplateVersion` parameters to use the launch template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RunInstances	The operation that you want to perform. Set the value to RunInstances.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the instance. You can call the DescribeRegions operation to query the most recent region list.
ImageId	String	No	aliyun_2_1903_x64_20G_alibase_20200324.vhd	The ID of the image used to create the instance. You can call the DescribeImages operation to query available images. If you do not set `LaunchTemplateId` or `LaunchTemplateName` to specify a launch template, you must specify the `ImageId` parameter.
InstanceType	String	No	ecs.g6.large	The instance type. If you do not set `LaunchTemplateId` or `LaunchTemplateName` to specify a launch template, you must specify the `InstanceType` parameter. • Select an appropriate instance type. For the performance data about instance types, see Instance families in ECS Product Introduction or call the DescribeInstanceTypes operation. • Query available ECS resources. You can call the DescribeAvailableResource operation to query available resources in the specified region or zone.

Parameter	Type	Required	Example	Description
SecurityGroupId	String	No	sg-bp15ed6xe1yxeycg7****	The ID of the security group to which to assign the instance. Instances in the same security group can communicate with each other. The maximum number of instances that a security group can contain depends on the security group type. **Note** The SecurityGroupId parameter determines the network type of instances in the security group. For example, a security group of the VPC type can contain only VPC-type instances, and you must also specify the VSwitchId parameter for the instances. If you do not use the `LaunchTemplateId` or `LaunchTemplateName` parameter to specify a launch template, you must set the `SecurityGroupId` parameter.
SecurityGroupIds.N	RepeatList	No	sg-bp15ed6xe1yxeycg7****	The IDs of security groups to which to assign the instance. The valid values of N depend on the maximum number of security groups to which an instance can belong. **Note** You cannot specify both SecurityGroupId and SecurityGroupIds.N.
VSwitchId	String	No	vsw-bp1s5fnvk4gn2tws0****	The ID of the vSwitch to which to connect the instance. You must specify this parameter when you create a VPC-type instance. The vSwitch and security group must belong to the same VPC.

Parameter	Type	Required	Example	Description
InstanceName	String	No	k8s-node-[1,4]-alibabacloud	The name of the instance. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), periods (.), and hyphens (-). It must start with a letter and cannot start with http:// or https://. The default value of this parameter is the `InstanceId` value. **Note** When you create multiple ECS instances, you can use `UniqueSuffix` to configure different instance names for the instances. You can also use the `name_prefix[begin_number,bits]name_suffix` naming format to configure sequential instance names. For example, if you set `InstanceName` to `k8s-node-[1,4]-alibabacloud`, the name of the first created ECS instance is `k8s-node-0001-alibabacloud`. If you do not append suffixes (`name_suffix`) to instance names or hostnames but configure instance names or hostnames in the `name_prefix[begin_number,bits]` format, the `UniqueSuffix` parameter is ignored. For example, when you set `InstanceName` to `instance-[99,3]` and `UniqueSuffix` to `true`, the instance name is `instance099` instead of `instance099001`.
Description	String	No	Instance_Description	The description of the instance. The description must be 2 to 256 characters in length and cannot start with http:// or https://.

Parameter	Type	Required	Example	Description
InternetMaxBandwidthIn	Integer	No	10	The maximum inbound bandwidth. Unit: Mbit/s. Valid values: • When the maximum outbound bandwidth is less than or equal to 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to 10 and the default value of InternetMaxBandwidthIn is 10. • When the maximum outbound bandwidth is greater than 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to the `InternetMaxBandwidthOut` value, and the default value of InternetMaxBandwidthIn is the `InternetMaxBandwidthOut` value.
InternetMaxBandwidthOut	Integer	No	10	The maximum outbound bandwidth. Unit: Mbit/s. Valid values: 0 to 100. Default value: 0.

Parameter	Type	Required	Example	Description
HostName	String	No	k8s-node-[1,4]-ecshost	The hostname of the instance. • The hostname cannot start or end with a period (,) or a hyphen (-). It cannot contain consecutive periods (.) or hyphens (-). • For Windows instances, the hostname must be 2 to 15 characters in length and can contain letters, digits, and hyphens (-). It cannot contain periods (.) or only digits. • For instances that run other operating systems such as Linux, the hostname must be 2 to 64 characters in length. You can use periods (.) to separate the hostname into multiple segments. Each segment can contain letters, digits, and hyphens (-). **Note** When you create multiple ECS instances, you can use the `UniqueSuffix` parameter to configure different hostnames for the instances. You can also use the `name_prefix[begin_number,bits]name_suffix` naming format to configure sequential hostnames. For example, if you set `HostName` to `k8s-node-[1,4]-ecshost`, the hostname of the first created instance is `k8s-node-0001-ecshost`. If you do not append suffixes (`name_suffix`) to instance names or hostnames but configure instance names or hostnames in the `name_prefix[begin_number,bits]` format, the `UniqueSuffix` parameter is ignored. For example, when you set `InstanceName` to `instance-[99,3]` and `UniqueSuffix` to `true`, the instance name is `instance099` instead of `instance099001`.

Parameter	Type	Required	Example	Description
UniqueSuffix	Boolean	No	true	Specifies whether to append sequential suffixes to the hostname specified by the `HostName` parameter and to the instance name specified by the `InstanceName` parameter. The sequential suffixes range from 001 to 999. For example, the names can be `LocalHost001`, `LocalHost002`, `MyInstance001`, and `MyInstance002`. Default value: false.
Password	String	No	EcsV587!	The password of the instance. The password must be 8 to 30 characters in length. It must include at least three of the following characters types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `()`~! @#$%^&*-_+=|{}[]:;'<>,.? /` For Windows instances, the password cannot start with a forward slash (/). **Note** For security reasons, we recommend that you use HTTPS to send requests if the `Password` parameter is specified.
PasswordInherit	Boolean	No	false	Specifies whether to use the password preset in the image. **Note** When you use this parameter, leave Password empty and make sure that the selected image has a password preset.

Parameter	Type	Required	Example	Description
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The ID of the zone in which to create the instance. You can call the DescribeZones operation to query the zone list. If you do not specify a zone ID, the system randomly selects a zone.
SystemDisk.Size	String	No	40	The size of the system disk. Unit: GiB. Valid values: 20 to 500. The value of this parameter must be at least 20 and greater than or equal to the size of the image. Default value: 40 or the size of the image, whichever is greater.
SystemDisk.Category	String	No	cloud_ssd	The category of the system disk. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud: basic disk For non-I/O optimized instances of retired instance types, the default value is cloud. For other instances, the default value is cloud_efficiency.
SystemDisk.DiskName	String	No	cloud_ssdSystem	The name of the system disk. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, periods (.), colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
SystemDisk.Description	String	No	SystemDisk_Description	The description of the system disk. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
SystemDisk.AutoSnapshotPolicyId	String	No	sp-bp67acfmxazb4p****	The ID of the automatic snapshot policy to be applied to the system disk.

Parameter	Type	Required	Example	Description
DataDisk.N.Size	Integer	No	2000	The size of data disk N. Valid values of N: 1 to 16. Unit: GiB. Valid values: • Valid values when DataDisk.N.Category is set to cloud_efficiency: 20 to 32768 • Valid values when DataDisk.N.Category is set to cloud_ssd: 20 to 32768 • Valid values when DataDisk.N.Category is set to cloud: 5 to 2000 The value of this parameter must be greater than or equal to the size of the snapshot specified by the `SnapshotId` parameter.
DataDisk.N.SnapshotId	String	No	s-bp17441ohwka0yuh****	The ID of the snapshot used to create data disk N. Valid values of N: 1 to 16. When the `DataDisk.N.SnapshotId` parameter is specified, the `DataDisk.N.Size` parameter is ignored. The data disk is created based on the size of the specified snapshot. Use snapshots created after July 15, 2013. Otherwise, an error message is returned and your request is rejected.
DataDisk.N.Category	String	No	cloud_ssd	The category of data disk N. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud: basic disk For I/O optimized instances, the default value is cloud_efficiency. For non-I/O optimized instances, the default value is cloud.
DataDisk.N.Encrypted	String	No	false	Specifies whether to encrypt data disk N. Default value: false.

Parameter	Type	Required	Example	Description
DataDisk.N.KMSKeyId	String	No	0e478b7a-4262-4802-b8cb-00d3fb40****	The ID of the KMS key to be used by data disk N.
DataDisk.N.DiskName	String	No	cloud_ssdData	The name of data disk N. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
DataDisk.N.Description	String	No	DataDisk_Description	The description of data disk N. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
DataDisk.N.Device	String	No	null	The mount point of data disk N. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
DataDisk.N.DeleteWithInstance	Boolean	No	true	Specifies whether to release data disk N when the instance is released. Default value: true.
DataDisk.N.AutoSnapshotPolicyId	String	No	sp-bp67acfmxazb4p****	The ID of the automatic snapshot policy to be applied to data disk N.
IoOptimized	String	No	optimized	Specifies whether the instance is I/O optimized. For instances of phased-out instance types, the default value is none. For other instances, the default value is optimized. Valid values: • none: The instance is not I/O optimized. • optimized: The instance is I/O optimized.

Parameter	Type	Required	Example	Description
NetworkInterface.N.PrimaryIpAddress	String	No	172.16.236.***	The primary IP address of secondary elastic network interface (ENI) N. Set the value of N to 1. **Note** You can bind only one secondary ENI when you create an ECS instance. After the instance is created, you can call the CreateNetworkInterface and AttachNetworkInterface operations to bind more secondary ENIs. The default value is an IP address that is randomly selected from within the CIDR block of the vSwitch to which to connect the secondary ENI.
NetworkInterface.N.VSwitchId	String	No	vsw-bp67acfmxazb4p****	The ID of the vSwitch to which to connect secondary ENI N. Set the value of N to 1. The default value is the ID of the vSwitch to which to connect the instance.
NetworkInterface.N.SecurityGroupId	String	No	sg-bp67acfmxazb4p****	The ID of the security group to which to assign secondary ENI N. Set the value of N to 1. The default value is the ID of the security group to which to assign the instance.

Parameter	Type	Required	Example	Description
NetworkInterface.N.SecurityGroupIds.N	RepeatList	No	sg-bp15ed6xe1yxeycg7****	The ID of security group N to which to assign secondary ENI N. The valid values of N in `SecurityGroupIds.N` depend on the maximum number of security groups to which an ENI or instance can belong. **Note** You cannot specify both the `NetworkInterface.N.SecurityGroupId` and `NetworkInterface.N.SecurityGroupIds.N` parameters.
NetworkInterface.N.NetworkInterfaceName	String	No	Network_Name	The name of secondary ENI N. Set the value of N to 1.
NetworkInterface.N.Description	String	No	Network_Description	The description of secondary ENI N. Set the value of N to 1. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
UserData	String	No	ZWNobyBoZWxsbyBlY3Mh	The user data of the instance. User data must be encoded in Base64. The maximum size of raw data is 16 KB.
KeyPairName	String	No	KeyPair_Name	The name of the key pair to be bound to the instance. • For Windows instances, this parameter is ignored and is empty by default. The `Password` parameter takes effect even if the KeyPairName parameter is specified. • For Linux instances, the username and password logon method is disabled by default.

Parameter	Type	Required	Example	Description
RamRoleName	String	No	RAM_Name	The name of the instance RAM role to be attached to the instance. You can call the ListRoles operation provided by RAM to query the instance RAM roles that you created.
Amount	Integer	No	3	The number of instances that you want to create. Valid values: 1 to 100. Default value: 1.
MinAmount	Integer	No	2	The minimum number of instances that can be created. Valid values: 1 to 100. • If the number of ECS instances that available resources are sufficient to create is less than the MinAmount value, instances fail to be created. • If the number of ECS instances that available resources are sufficient to create is greater than or equal to the MinAmount value, instances are created based on the number of available resources.
AutoReleaseTime	String	No	2018-01-01T12:05:00Z	The automatic release time of the instance. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. • If the value of the seconds (`ss`) is not `00` , the time is automatically rounded down to the nearest minute based on the value of `mm` . • The release time must be at least 30 minutes later than the current time. • The release time must be no later than three years from the current time.

Parameter	Type	Required	Example	Description
SpotPriceLimit	Float	No	0.97	The maximum hourly price of the instance. A maximum of three decimal places are allowed in the value of this parameter. This parameter takes effect only when the `SpotStrategy` parameter is set to `SpotWithPriceLimit`.
SecurityEnhancementStrategy	String	No	Active	Specifies whether to enable security hardening. Valid values: • Active: enables security hardening. This value is applicable only to public images. • Deactive: disables security hardening. This value is applicable to all image types.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the instance, disks, and primary ENI. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the instance, disks, and primary ENI. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
HpcClusterId	String	No	hpc-bp67acfmxazb4p****	The ID of the E-HPC cluster to which to assign the instance.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include the request format, service limits, available ECS resources, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The validity of the request is checked. If the check succeeds, the request is made.
DedicatedHostId	String	No	dh-bp67acfmxazb4p****	The ID of the dedicated host on which to create the instance. You can call the DescribeDedicatedHosts operation to query the dedicated host list.
LaunchTemplateId	String	No	lt-bp1apo0bbbkuy0rj****	The ID of the launch template. For more information, see DescribeLaunchTemplates. To use a launch template to create an instance, you must specify the launch template by using the `LaunchTemplateId` or `LaunchTemplateName` parameter.
LaunchTemplateName	String	No	LaunchTemplate_Name	The name of the launch template. To use a launch template to create an instance, you must specify the launch template by using the `LaunchTemplateId` or `LaunchTemplateName` parameter.

Parameter	Type	Required	Example	Description
LaunchTemplateVersion	Long	No	3	The version of the launch template. If you specify `LaunchTemplateId` or `LaunchTemplateName` but do not specify the version number of the launch template, the default template version is used.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the instance.
DeploymentSetId	String	No	ds-bp1brhwhoqinyjd6****	The ID of the deployment set to which to deploy the instance.
PrivateIpAddress	String	No	10.1.2.1	The private IP address to be assigned to the instance. To assign a private IP address to a VPC-type ECS instance, make sure that the IP address is an idle IP address within the CIDR block of the vSwitch specified by the `VSwitchId` parameter. **Note** If the `PrivateIpAddress` parameter is specified, the `Amount` parameter must be set to 1.
CreditSpecification	String	No	Standard	The performance mode of the burstable instance. Valid values: • Standard: standard mode • Unlimited: unlimited mode This parameter is empty by default.

Parameter	Type	Required	Example	Description
Ipv6Address.N	RepeatList	No	Ipv6Address.1=2001:db8:1234:1a00::***	IPv6 address N to be assigned to the primary ENI. Set the value of N to 1. Example: `Ipv6Address.1=2001:db8:1234:1a00::***`. **Note** If the `Ipv6Address.N` parameter is specified, the `Amount` parameter must be set to 1 and the `Ipv6AddressCount` parameter must be empty.
Ipv6AddressCount	Integer	No	1	The number of IPv6 addresses to be randomly generated for the primary ENI. **Note** You cannot specify both the `Ipv6Addresses.N` and `Ipv6AddressCount` parameters.
DeletionProtection	Boolean	No	false	Specifies whether to enable release protection for the instance. The release protection attribute of the instance determines whether you can release the instance by using the ECS console or by calling the DeleteInstance operation. Default value: false. Valid values: • true: enables release protection. • false: disables release protection. **Note** This attribute can protect instances only against manual releases, not against automatic releases.

Parameter	Type	Required	Example	Description
Affinity	String	No	default	Specifies whether to associate the instance deployed on a dedicated host with the dedicated host. Valid values: • default: does not associate the instance with the dedicated host. If you start the instance from the No Fees for Stopped Instances (VPC-Connected) state and the resources of the dedicated host are insufficient, the instance is automatically deployed to another dedicated host in the automatic deployment resource pool. • host: associates the instance with the dedicated host. If you start the instance from the No Fees for Stopped Instances (VPC-Connected) state, the instance still resides on the associated dedicated host. If the resources of the associated dedicated host are insufficient, the instance fails to be started. Default value: default.
Tenancy	String	No	default	Specifies whether to create the instance on a dedicated host. Valid values: • default: creates the instance on a non-dedicated host. • host: creates the instance on a dedicated host. If you do not specify the `DedicatedHostId` parameter, Apsara Stack automatically selects a dedicated host for the instance. Default value: default.
StorageSetId	String	No	ss-bp67acfmxazb4p****	The ID of the storage set.
StorageSetPartitionNumber	Integer	No	2	The maximum number of partitions in the storage set. Valid values: greater than or equal to 2.

Parameter	Type	Required	Example	Description
CpuOptions.Core	Integer	No	2	The number of CPU cores. This parameter cannot be specified but only uses its default value.
CpuOptions.ThreadsPerCore	Integer	No	2	The number of threads per core. The following formula is used to calculate the number of vCPUs of the instance: `CpuOptions.Core` value × `CpuOptions.ThreadPerCore` value. • If the `CpuOptions.ThreadPerCore` parameter is set to 1, CPU hyper-threading is disabled. • This parameter is applicable only to some instance types.
CpuOptions.Numa	String	No	1	The number of CPU Numa nodes.

Response parameters

Parameter	Type	Example	Description
InstanceIdSets	List	["i-bp67acfmxazb4pd2****", "i-bp1i43l28m7u48p1****", "i-bp12yqg7jdyxl11f****"]	The IDs of the instances (`InstanceIdSet`).
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TradePrice	Float	0.165	**Note** This parameter is not supported.

Examples

Sample requests

```
https://ecs.example.com/?Action=RunInstances
&RegionId=cn-qingdao-env17-d01
&ImageId=aliyun_2_1903_x64_20G_alibase_20200324.vhd
&InstanceType=ecs.g6.large
&SecurityGroupId=sg-bp67acfmxazb4p****
&VSwitchId=vsw-bp1s5fnvk4gn2tws0****
&SystemDisk.AutoSnapshotPolicyId=sp-bp67acfmxazb4p****
&Amount=3
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RunInstancesResponse>
      <InstanceIdSets>
            <InstanceIdSet>i-bp67acfmxazb4pd2****</InstanceIdSet>
            <InstanceIdSet>i-bp1i43l28m7u48p1****</InstanceIdSet>
            <InstanceIdSet>i-bp12yqg7jdyxl11f****</InstanceIdSet>
      </InstanceIdSets>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</RunInstancesResponse>
```

`JSON` format

```
{
    "InstanceIdSets": {
        "InstanceIdSet": [
            "i-bp67acfmxazb4pd2****",
            "i-bp1i43l28m7u48p1****",
            "i-bp12yqg7jdyxl11f****"
        ]
    },
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorized.	The error message returned because you are not authorized to use the specified instance type.
404	InvalidSecurityGroupId	The specified SecurityGroupId is invalid or does not exist.	The error message returned because the specified SecurityGroupId parameter is invalid or does not exist.

HttpCode	Error code	Error message	Description
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType beyond the permitted range.	The error message returned because the specified InstanceType parameter is invalid.
404	InvalidSecurityGroupId.NotFound	The SecurityGroupId provided does not exist in our records.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
400	InvalidDescription.Malformed	The specified parameter "Description" is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidInternetChargeType.ValueNotSupported	The specified InternetChargeType is not valid.	The error message returned because the specified billing method for network usage is not supported.
400	InvalidParameter	The specified parameter "InternetMaxBandwidthOut" is not valid.	The error message returned because the specified InternetMaxBandwidthOut parameter is invalid.
400	InvalidHostName.Malformed	The specified parameter "HostName" is not valid.	The error message returned because the specified HostName parameter is invalid.
403	InvalidParams.InstanceNameExceed	The uniqueSuffix takes three naming places, please shorten your InstanceName.	The error message returned because the instance name must be shortened to make space for the sequential suffix specified by UniqueSuffix. The sequential suffix is three characters in length.
403	InvalidParams.HostnameExceed	The uniqueSuffix takes three naming places, please shorten your Hostname.	The error message returned because the instance hostname must be shortened to make space for the sequential suffix specified by UniqueSuffix. The sequential suffix is three characters in length.
400	InvalidPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.

HttpCode	Error code	Error message	Description
400	InvalidPasswordParam.Mismatch	The input password should be null when passwdInherit is true.	The error message returned because the Password parameter is specified when PasswdInherit is set to true.
400	InvalidSystemDiskCategory.ValueNotSupported	The specified parameter "SystemDisk.Category" is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
400	InvalidDiskName.Malformed	The specified parameter "SyatemDisk.DiskName or DataDisk.n.DiskName" is not valid.	The error message returned because the specified SystemDisk.DiskName or DataDisk.N.DiskName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidDiskDescription.Malformed	The specified parameter "SyatemDisk.DiskDescription" or "DataDisk.n.Description" is not valid.	The error message returned because the specified SystemDisk.Description or DataDisk.N.Description parameter is invalid.
400	InvalidDataDiskSize.ValueNotSupported	The specified DataDisk.n.Size beyond the permitted range, or the capacity of snapshot exceeds the size limit of the specified disk category.	The error message returned because the specified DataDisk.N.Size parameter is invalid or the snapshot size exceeds the maximum capacity allowed for the specified disk category.
400	InvalidDataDiskCategory.ValueNotSupported	The specified parameter "DataDisk.n.Category" is not valid.	The error message returned because the specified DataDisk.N.Category parameter is invalid.
404	InvalidDataDiskSnapshotId.NotFound	The specified parameter "DataDisk.n.SnapshotId" is not valid.	The error message returned because the specified DataDisk.N.SnapshotId parameter is invalid.
400	InvalidDataDevice.Malformed	The specified parameter "DataDisk.n.Device" is not valid.	The error message returned because the specified DataDisk.N.Device parameter is invalid.

HttpCode	Error code	Error message	Description
400	InvalidNodeControllerId.Malformed	The specified parameter "NodeControllerId" is not valid.	The error message returned because the specified NodeControllerId parameter is invalid.
400	InvalidInnerIpAddress.Malformed	The specified parameter "InnerIpAddress" is not valid.	The error message returned because the specified InnerIpAddress parameter is invalid.
400	InvalidInnerIpAddress.Unusable	The specified InnerIpAddress is already used or not found in usable ip range.	The error message returned because the specified internal IP address is unavailable.
400	InvalidParameter.Conflict	The specified image does not support the specified instance type.	The error message returned because the specified image does not support the specified instance type.
400	ImageNotSupportCloudInit	The specified image does not support cloud-init.	The error message returned because the specified image does not support cloud-init.
400	InvalidSnapshotId.BasedSnapshotTooOld	The specified snapshot is created before 2013-07-15.	The error message returned because the specified snapshot was created before July 15, 2013.
400	QuotaExceed.AfterpayInstance	Living afterpay instances quota exceeded.	The error message returned because the maximum number of active pay-as-you-go instances has been reached.
403	ImageNotSubscribed	The specified image has not be subscribed.	The error message returned because you have not subscribed to the specified Alibaba Cloud Marketplace image.
403	InvalidSystemDiskCategory.ValueUnauthorized	The disk category is not authorized.	The error message returned because you are not authorized to use the specified disk category.
403	InvalidSnapshotId.NotReady	The specified snapshot has not completed yet.	The error message returned because the specified snapshot is being created.
403	InstanceDiskCategoryLimitExceed	The total size of specified disk category in an instance exceeds.	The error message returned because the total size of disks of the specified category exceeds the maximum capacity allowed for an instance.

HttpCode	Error code	Error message	Description
403	InvalidDevice.InUse	The specified device has been occupied.	The error message returned because the specified device is already in use.
403	ImageRemovedInMarket	The specified market image is not available, Or the specified user defined image includes product code because it is based on an image subscribed from marketplace, and that image in marketplace includeing exact the same product code has been removed.	The error message returned because the specified Alibaba Cloud Marketplace image is unavailable, or because the specified custom image contains the product code of the Alibaba Cloud Marketplace image from which the custom image is derived and the Alibaba Cloud Marketplace image has been removed from Alibaba Cloud Marketplace.
404	InvalidClusterId.NotFound	The ClusterId provided does not exist in our records.	The error message returned because the specified cluster ID does not exist.
403	CategoryNotSupported	The specified zone does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified zone.
400	InvalidInstanceName.Malformed	The specified parameter "InstanceName" is not valid.	The error message returned because the specified InstanceName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidDiskDescription.Malformed	The specified parameter "SyatemDisk.DiskDescription or DataDisk.n.Description" is not valid.	The error message returned because the specified SystemDisk.Description or DataDisk.N.Description parameter is invalid.
403	QuotaExceed.PortableCloudDisk	The quota of portable cloud disk exceeds.	The error message returned because the maximum number of removable disks has been reached.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HttpCode	Error code	Error message	Description
400	InvalidParameter.Conflict	The speicified region and cluster do not match.	The error message returned because the specified region and cluster do not correspond to each other.
403	SecurityGroupInstanceLimitExceed	Exceeding the allowed amount of instances of a security group.	The error message returned because the maximum number of instances in the security group has been reached.
403	NodeControllerUnavailable	The Node Controller is temporarily unavailable.	The error message returned because the node controller is unavailable.
403	RegionUnauthorized	There is no authority to create instance in the specified region.	The error message returned because you are not authorized to create instances in the specified region.
403	CategoryNotSupported	The specified Zone or cluster does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified zone or cluster.
403	InvalidSnapshotId.NotDataDiskSnapshot	The specified snapshot is system disk snapshot.	The error message returned because the specified snapshot is a system disk snapshot.
403	CategoryNotSupported	The specified cluster does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified cluster.
404	InvalidVSwitchId.NotFound	Specified virtual switch does not exist.	The error message returned because the specified VSwitchId parameter does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitchId parameter does not exist.
400	InvalidParameter.Mismatch	Specified security group and virtual switch are not in the same VPC.	The error message returned because the specified security group and vSwitch do not belong to the same VPC.
400	InvalidNetworkType.Mismatch	Specified parameter "InternetMaxBandwidthIn" or "InternetMaxBandwidthOut" conflict with instance network type.	The error message returned because the specified InternetMaxBandwidthIn or InternetMaxBandwidthOut parameter conflicts with the instance network type.

HttpCode	Error code	Error message	Description
400	InvalidNetworkType.Mismatch	Specified parameter "InternetChargeType" conflict with instance network type.	The error message returned because the network type of the instance does not support the specified billing method for network usage.
400	InvalidPrivateIpAddress	Specified private IP address is not in the CIDR block of virtual switch.	The error message returned because the specified private IP address is not within the CIDR block of the specified vSwitch.
400	InvalidPrivateIpAddress.Malformed	Specified private IP address is malformed.	The error message returned because the specified PrivateIpAddress parameter is invalid.
400	InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	The error message returned because the specified private IP address is already in use. Try another IP address.
400	QuotaExceeded.PrivateIpAddress	Don't have enough private IPs in this switch	The error message returned because all the private IP addresses within the CIDR block of the specified vSwitch are already in use. Try another vSwitch.
400	QuotaExceeded	Living instances quota exceeded in this VPC.	The error message returned because the maximum number of active instances has been reached.
400	IncorrectVSwitchStatus	The current status of virtual switch does not support this operation.	The error message returned because the specified vSwitch is in the Pending state and cannot be deleted.
400	InvalidParameter.Mismatch	Specified virtual switch is not in the specified zone.	The error message returned because the specified vSwitch does not exist in the specified zone.
400	ResourceNotAvailable	Resource you requested is not available in this region or zone.	The error message returned because VPC is not supported by the specified region or zone.
400	MissingParameter	The input parameter "VSwitchId" that is mandatory for processing this request is not supplied.	The error message returned because the VSwitchId parameter is not specified.

HttpCode	Error code	Error message	Description
400	InvalidDiskCategory.Mismatch	The specified disk categories' combination is not supported.	The error message returned because the combination of specified disk categories is not supported.
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are not authorized to perform operations on the specified resource.
403	DeleteWithInstance.Conflict	The specified disk is not a portable disk and cannot be set to DeleteWithInstance attribute.	The error message returned because the specified disk is not removable and cannot be released along with the instance.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
403	InstanceDiskNumLimitExceed	The number of specified disk in an instance exceeds.	The error message returned because the number of specified disks exceeds the upper limit for an instance.
403	IoOptimized.NotSupported	The specified image is not support IoOptimized Instance.	The error message returned because the specified image does not support I/O optimized instances.
404	IoOptimized.NotSupported	The specified instancetype is not support IoOptimized instance	The error message returned because the specified instance type does not support I/O optimization.
403	InvalidDiskSize.TooSmall	Specified disk size is less than the size of snapshot	The error message returned because the specified disk size is smaller than the snapshot size.
404	InvalidInstanceChargeType.NotFound	The InstanceChargeType does not exist in our records	The error message returned because the specified instance billing method does not exist.
400	MissingParamter	The specified parameter "Period" is not null.	The error message returned because the Period parameter is not specified.
400	InvalidPeriod	The specified period is not valid.	The error message returned because the specified Period parameter is invalid.

HttpCode	Error code	Error message	Description
403	InvalidDiskCategory.Mismatch	The specified disk categories combination is not supported.	The error message returned because the combination of specified disk categories is not supported.
403	IoOptimized.NotSupported	Vpc is not support IoOptimized instance.	The error message returned because the VPC does not support I/O optimized instances.
400	InvalidDataDiskCategory.ValueNotSupported	The specified parameter " DataDisk.n.Category " is not valid.	The error message returned because the specified DataDisk.N.Category parameter is invalid.
400	InvalidSystemDiskCategory.ValueNotSupported	The specified parameter " SystemDisk.Category " is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
403	InvalidDiskCategory.NotSupported	The specified disk category is not support the specified instance type.	The error message returned because the specified disk category does not support the instance type.
400	InstanceDiskCategoryLimitExceed	The specified DataDisk.n.Size beyond the permitted range, or the capacity of snapshot exceeds the size limit of the specified disk category.	The error message returned because the specified DataDisk.N.Size parameter is invalid or the snapshot size exceeds the maximum capacity allowed for the specified disk category.
403	QuotaExceed.BuyImage	The specified image is from the image market? You have not bought it or your quota has been exceeded.	The error message returned because the specified Alibaba Cloud Marketplace image has not been purchased or the maximum number of images has been reached.
404	DependencyViolation.IoOptimized	The specified instancetype must be IoOptimized instance.	The error message returned because the specified instance type is not I/O optimized.
404	PaymentMethodNotFound	No payment method has been registered on the account.	The error message returned because you have not configured a payment method for your account.
400	InvalidInstanceType.ValueNotSupported	InternetMaxBandwidthOut should be set.	The error message returned because the InternetMaxBandwidthOut parameter is not specified.

HttpCode	Error code	Error message	Description
400	InvalidInstanceType.ValueNotSupported	instancetype is not valid.	The error message returned because the specified InstanceType parameter is invalid.
400	InvalidClientToken.ValueNotSupported	clienttoken is not valid.	The error message returned because the specified ClientToken parameter is invalid.
400	InvalidIoOptimize.ValueNotSupported	The specified IoOptimize is not valid.	The error message returned because the specified IoOptimized parameter is invalid.
400	InvalidHostName.Malformed	The specified parameter HostName is not valid.	The error message returned because the specified HostName parameter is invalid.
404	HOSTNAME_ILLEGAL	hostname is not valid.	The error message returned because the specified HostName parameter is invalid.
400	InvalidInternetMaxBandwidthOut.Malformed	The specified parameter internetMaxBandwidthOut is not valid.	The error message returned because the specified InternetMaxBandwidthOut parameter is invalid.
400	InvalidInternetMaxBandwidthIn.Malformed	The specified parameter internetMaxBandwidthIn is not valid.	The error message returned because the specified InternetMaxBandwidthIn parameter is invalid.
400	InvalidSnapshotId.NotFound	The specified parameter SnapshotId is not exist.	The error message returned because the specified snapshot does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.

HttpCode	Error code	Error message	Description
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
400	InvalidMinAmount.Malformed	The specified parameter MinAmount is not valid.	The error message returned because the specified MinAmount parameter is invalid.
400	InvalidMaxAmount.Malformed	The specified parameter MaxAmount is not valid.	The error message returned because the specified MaxAmount parameter is invalid.
400	InvalidAutoReleaseTime.Malformed	The specified parameter AutoReleaseTime is not valid.	The error message returned because the specified AutoReleaseTime parameter is invalid. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
400	InvalidPrivateIpAddress.Malformed	The specified parameter PrivateIpAddress is not valid.	The error message returned because the specified PrivateIpAddress parameter is invalid.
400	InvalidInnerIpAddress.Malformed	The specified parameter InnerIpAddress is not valid.	The error message returned because the specified InnerIpAddress parameter is invalid.
404	InvalidSystemDiskSize.LessThanImageSize	The specified parameter SystemDisk.Size is less than the image size.	The error message returned because the specified system disk size is smaller than the size of the image.
404	InvalidSystemDiskSize.LessThanMinSize	The specified parameter SystemDisk.Size is less than the min size.	The error message returned because the specified system disk size is smaller than the minimum size.
403	OperationDenied	The specified RegionId does not support the creation of the network type ECS instance.	The error message returned because instances of the specified network type cannot be created in the specified region. Check whether instance resources of this network type are available in the region.
400	OperationDenied.NoVlan	The specified parameter "VlanId" is not valid or vlan has not enough IP address.	The error message returned because the specified VLAN ID is invalid or because available IP addresses in the specified VLAN are insufficient.

HttpCode	Error code	Error message	Description
403	OperationDenied.ImageNotValid	The specified Image is disabled or is deleted.	The error message returned because the specified ImageId parameter does not exist.
403	OperationDenied.SnapshotNotValid	The specified snapshot is not allowed to create disk.	The error message returned because the specified snapshot cannot be used to create disks.
403	OperationDenied.SnapshotNotAllowed	The specified snapshot is not allowed to create disk.	The error message returned because the specified snapshot cannot be used to create disks.
403	OperationDenied.ZoneNotAllowed	The creation of Instance to the specified Zone is not allowed.	The error message returned because instances cannot be created in the specified zone.
403	OperationDenied.ZoneSystemCategoryNotMatch	The specified Zone or cluster does not offer the specified disk category or the speicified zone and cluster do not match.	The error message returned because the specified disk category is unavailable in the specified zone or cluster, or because the specified zone and cluster do not correspond to each other.
403	OperationDenied.ResourceControl	The specified region is in resource control, please try later.	The error message returned because the specified region is under resource control. Try again later.
403	OperationDenied.NoStock	The resource is out of usage.	The error message returned because the instance is not in the Running state. Start the instance or check whether the operation is valid.
403	OperationDenied.SnapshotParamsNotValid	The capacity of snapshot exceeds the size limit of the specified disk category or the specified category is not authorizied.	The error message returned because the maximum snapshot size has been reached or because you are not authorized to use the specified disk category.
404	OperationDenied.CreatingConflict	Another Instance has been creating	The error message returned because no other instances can be created while an instance is being created.
403	OperationDenied.DiskTypeNotSupport	The type of the disk does not support the operation	The error message returned because the specified operation is invalid.

HttpCode	Error code	Error message	Description
400	OperationDenied.QuotaExceed	The quota of tags on resource is beyond permitted range.	The error message returned because the maximum number of tags that can be bound to the resource has been reached.
400	Account.Arrearage	Your account has been in arrears.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.
403	InvalidUserData.Forbidden	User not authorized to input the parameter "UserData", please apply for permission "UserData"	The error message returned because you are not authorized to manage user data. Apply for the permission first.
400	InvalidUserData.SizeExceeded	The specified parameter "UserData" exceeds the size.	The error message returned because the size of user data specified in the UserData value exceeds the upper limit.
400	InvalidUserData.NotSupported	The specified parameter "UserData" only support the vpc and IoOptimized Instance.	The error message returned because the specified UserData parameter is not supported. UserData is supported only on VPC-type instances and I/O optimized instances.
404	InvalidZoneId.NotFound	The specified zoneId does not exist.	The error message returned because the specified ZoneId parameter does not exist.
403	Zone.NotOpen	The specified zone is not granted to you to buy resources yet.	The error message returned because you are not authorized to purchase resources in the specified zone.
403	Zone.NotOnSale	The resource in the specified zone is no longer available for sale. Please try other regions and zones.	The error message returned because the specified resource is unavailable in the specified zone. Try other resource types, or select other regions or zones.
403	InvalidClusterId.NotFound	The specified clusterId does not exist.	The error message returned because the specified cluster ID does not exist.
403	OperationDenied.NoStock	The resource is out of stock in the specified zone. Please try other types, or choose other regions and zones.	The error message returned because the specified resource is unavailable in the specified zone. Try other resource types, or select other regions or zones.

HttpCode	Error code	Error message	Description
403	InvalidInstanceType.ZoneNotSupported	The specified zone does not support this instancetype.	The error message returned because the specified instance type is not supported in the specified zone.
400	InstanceDiskNumber.LimitExceed	The total number of specified disk in an instance exceeds.	The error message returned because the number of specified disks exceeds the upper limit for an instance.
400	InvalidDiskCategory.ValueNotSupported	The specified parameter "DiskCategory" is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
400	InvalidSpotStrategy	The specified SpotStrategy is not valid.	The error message returned because the specified SpotStrategy parameter is invalid.
400	InvalidSpotPriceLimit	The specified SpotPriceLimitis not valid.	The error message returned because the specified SpotPriceLimit parameter is invalid.
400	InvalidSpotDuration	The specified SpotDuration is not valid.	The error message returned because the specified SpotDuration parameter is invalid.
400	InvalidSpotAuthorized	The specified Spot param is unauthorized.	The error message returned because you are not authorized to set the SpotDuration parameter.
400	InvalidSpotPrepaid	The specified Spot type is not support PrePay Instance.	The error message returned because preemptible instances do not support the subscription billing method.
400	InvalidSpotAliUid	The specified UID is not authorized to use SPOT instance.	The error message returned because you are not authorized to create preemptible instances.
400	InvalidParameter.Bandwidth	%s	The error message returned because the specified bandwidth is invalid.
400	InvalidDataDiskCategory.ValueNotSupported	%s	The error message returned because the specified data disk category is invalid.

HttpCode	Error code	Error message	Description
400	InvalidSystemDiskCategory.ValueNotSupported	%s	The error message returned because the operation is not supported by the specified system disk category.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	InvalidInternetChargeType.ValueNotSupported	%s	The error message returned because the specified billing method for network usage is not supported.
400	InvalidInstanceType.ValueNotSupported	%s	The error message returned because the operation is not supported by the specified instance type.
403	InstanceType.Offline	%s	The error message returned because the operation is not supported while the instance type is retired or resources of the instance type are insufficient.
400	RegionUnauthorized	%s	The error message returned because you are not authorized to perform the operation in the specified region.
400	Zone.NotOnSale	%s	The error message returned because the requested resources are unavailable in the specified zone.
400	InvalidSystemDiskSize.ValueNotSupported	%s	The error message returned because the specified system disk size is invalid.
400	InvalidDataDiskSize.ValueNotSupported	%s	The error message returned because the specified data disk size is invalid.
403	DependencyViolation.WindowsInstance	The instance creating is window, cannot use ssh key pair to login.	The error message returned because the specified instance is a Windows instance and does not support logons based on SSH key pairs.

HttpCode	Error code	Error message	Description
400	InvalidInstanceType.ValueNotSupported	The specified parameter "KeyPairName" only support IoOptimized Instance.	The error message returned because non-I/O optimized instances do not support SSH key pairs.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
403	InvalidUser.PassRoleForbidden	The RAM user does not have the privilege to pass a RAM role.	The error message returned because the RAM user is not authorized to pass the RAM role.
404	InvalidRamRole.NotFound	The specified parameter "RAMRoleName" does not exist.	The error message returned because the specified RAMRoleName parameter does not exist.
404	InvalidLaunchTemplate.NotFound	%s	The error message returned because the specified launch template does not exist. Check whether the parameter is correct.
404	InvalidLaunchTemplateVersion.NotFound	%s	The error message returned because the specified launch template of the specified version does not exist. Check whether the parameter is correct.
400	InvalidInstanceType.ElasticNetworkInterfaceNotSupported	The specified instance type does not support Elastic Network Interface, you can not attach Elastic Network Interface to generation I instances.	The error message returned because ENIs are not supported by the specified instance type.
400	InvalidParameter.EncryptedIllegal	%s	The error message returned because the specified parameter is invalid. Check whether your encryption operation is valid.
400	InvalidParameter.EncryptedNotSupported	%s	The error message returned because the specified parameter is invalid and your encryption operation is not supported.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HttpCode	Error code	Error message	Description
403	Forbidden.RiskControl	This operation is forbidden by Aliyun RiskControl system.	The error message returned because the operation is forbidden by the risk control system.
403	InvalidInstance.UnPaidOrder	The specified Instance has unpaid order.	The error message returned because you have unpaid orders for the specified instance. Pay for the orders and try again.
403	RealNameAuthenticationError	Your account has not passed the real-name authentication yet.	The error message returned because you have not completed real-name verification. Complete real-name verification and try again.
403	InvalidInstanceType.NotSupported	The specified InstanceType is not Supported.	The error message returned because the specified InstanceType parameter is not supported.
403	InvalidPayMethod	The specified pay method is not valid.	The error message returned because the specified payment method is invalid.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.
400	InvalidSpotPriceLimit.LowerThanPublicPrice	The specified parameter "spotPriceLimit" can't be lower than current public price.	The error message returned because the specified value of SpotPriceLimit is less than the current market price.
400	InvalidRelationResource.NotFound	The relation resource has been deleted.	The error message returned because the associated resource has been deleted.
400	IncorrectRecycleBinStatus	The operation is not permitted due to resource status.	The error message returned because the operation is not supported while the resource is in the current state.
400	InvalidHpcClusterId.Unnecessary	The specified HpcClusterId is unnecessary	The error message returned because the HpcClusterId parameter is specified.
400	InvalidVSwitchId.Necessary	The VSwitchId is necessary	The error message returned because the VSwitchId parameter is not specified.

HttpCode	Error code	Error message	Description
400	InvalidHpcClusterId.Necessary	The HpcClusterId is necessary	The error message returned because the HpcClusterId parameter is not specified.
400	InvalidHpcClusterId.NotFound	The specified HpcClusterId is not found	The error message returned because the specified HpcClusterId parameter does not exist.
404	InvalidVSwitchId.NotExist	%s	The error message returned because the specified VSwitchId parameter does not exist.
403	ImageNotSupportInstanceType	The specified image does not support the specified InstanceType.	The error message returned because the specified image does not support the specified instance type.
400	InvalidSecurityGroup.NotInDefaultVpc	%s	The error message returned because the specified security group is not in the default VPC. Check whether the specified SecurityGroupId parameter is correct.
400	VpcNotFound	Vpc is not found according to the specified VSwitch or the vpc does not belong to you.	The error message returned because the specified vSwitch does not belong to any VPC, or the corresponding VPC does not belong to you.
400	InvalidSystemDiskSize.ImageNotSupportResize	The specified image does not support resize.	The error message returned because the specified image does not support resizing.
403	OperationDenied.InvalidNetworkType	%s	The error message returned because the operation is not supported by the specified network type.
400	InvalidSpotInterruptionBehavior	%s	The error message returned because the specified SpotInterruptionBehavior parameter is invalid.
403	InvalidSpotInterruptionBehavior.ClassicNetworkNotSupport	The specified SpotInterruptionBehavior does not support Classic network Instance.	The error message returned because the operation is not applicable to instances in the classic network.

HttpCode	Error code	Error message	Description
403	InvalidSpotInterruptionBehavior.LocalDiskNotSupport	The specified SpotInterruptionBehavior does not support local disk instance.	The error message returned because the operation is not supported by instances that have local disks attached.
400	InvalidDeploymentOnHost	%s	The error message returned because the instance cannot be deployed in the specified deployment set.
400	InvalidInstanceChargeType.NotSupport	The Dedicated host not support the specified Instance charge type.	The error message returned because the dedicated host does not support instances that use the specified billing method.
400	InvalidNetworkType.NotSupported	The classic networkType not support create ECS on dedicatedHost	The error message returned because the dedicated host does not support instances in the classic network.
400	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
400	InvalidDedicatedHostStatus.NotSupport	Operation denied due to dedicated host status.	The error message returned because the operation is not supported while the dedicated host is in the current state.
400	IncorrectDedicatedHostStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
400	ChargeTypeViolation.PostPaidDedicatedHost	Prepaid instance onto postpaid dedicated host is not allowed	The error message returned because subscription instances cannot be deployed on pay-as-you-go dedicated hosts.
400	InvalidPeriod.ExceedEdDedicatedHost	Instance expired date can't exceed dedicated host expired date.	The error message returned because the expiration date of the instance is later than that of the dedicated host.
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorize.	The error message returned because you are not authorized to use the specified instance type.

HttpCode	Error code	Error message	Description
400	DedicatedHostType.Unmatched	The specified DedicatedHostType doesn? t match the instance type.	The error message returned because the specified dedicated host type does not correspond to the specified instance type.
400	MissingParameter	The input parameter ImageId that is mandatory for processing this request is not supplied.	The error message returned because the ImageId parameter is not specified.
400	MissingParameter	The input parameter InstanceType that is mandatory for processing this request is not supplied.	The error message returned because the InstanceType parameter is not specified.
400	ChargeTypeViolation.PostPaidDedicatedHost	Prepaid instance onto postpaid dedicated host is not allowed.	The error message returned because subscription instances cannot be deployed on pay-as-you-go dedicated hosts.
400	InvalidParam.NetworkInterface	%s	The error message returned because a specified parameter is invalid. Check whether the parameter corresponds to the interface.
403	OperationDenied.ImageNotValid	%s	The error message returned because the image does not support the operation.
403	QuotaExceed.PostPaidDisk	Living postPaid disks quota exceeded.	The error message returned because the maximum number of pay-as-you-go disks has been reached.
401	InvalidRamRole.NotEcsRole	The specified ram role is not authorized for ecs, please check your role policy.	The error message returned because the specified RAM role is not authorized to use ECS. Check your role policy.
403	InvalidParameter.NotMatch	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	InvalidParameter.CreditSpecification	The specified CreditSpecification is not supported in this region.	The error message returned because the specified credit policy is not supported in the region.

HttpCode	Error code	Error message	Description
404	InvalidMarketImage.NotFound	The specified marketplace image does not exist, please change the imageId and try again.	The error message returned because the specified Alibaba Cloud Marketplace image does not exist. Modify the parameter and try again later.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the operation is not supported while the VPC is in the current state.
400	InvalidInstanceType.NotSupported	The specified instanceType is not supported by the deployment set.	The error message returned because the specified instance type is not supported by the current deployment set. Try another instance type.
400	InvalidVpcZone.NotSupported	The specified operation is not allowed in the zone to which your VPC belongs, please try in other zones.	The error message returned because the specified region does not support the specified operation. Try another region.
400	IncorrectDefaultVpcStatus	The status of the default VPC is invalid.	The error message returned because the status of the default VPC is invalid.
404	DeploymentSet.NotFound	The specified deployment set does not exist.	The error message returned because the specified DeploymentSetId parameter does not exist.
400	InvalidAutoRenewPeriod.ValueNotSupported	The specified autoRenewPeriod is invalid.	The error message returned because the specified auto-renewal duration is invalid.
403	OperationDenied.LocalDiskUnsupported	The configuration change is not allowed when the specified instance has local disks mounted.	The error message returned because the instance types of instances that have local disks attached cannot be changed.
403	OperationDenied.InconsistentNetwork	The specified security group and vswitch are not in the same vpc.	The error message returned because the specified security group and vSwitch do not belong to the same VPC.
403	OperationDenied	If the network segment of the vswitch is the same as that of its VPC. Therefore, the VPC cannot create other vswitchs across the region.	The error message returned because the VPC and vSwitch have the same CIDR block and no additional vSwitches can be created for other zones of the VPC.

HttpCode	Error code	Error message	Description
403	DefaultVswitch.Existed	The default vswitch for VPC already exists.	The error message returned because a default vSwitch already exists in the current VPC.
400	InvalidMarketImageChargeType.NotSupport	The specified chargeType of marketImage is unsupported.	The error message returned because the billing method of the Alibaba Cloud Marketplace image is not supported.
403	OperationDenied.NoStock	The requested resource is sold out in the specified zone; try other types of resources or other regions and zones.	The error message returned because resources are insufficient in the specified zone. Try other types of resources, or select other regions and zones.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	CategoryViolation	The specified instance does not support this operation because of its disk category.	The error message returned because the configurations of instances that have local disks attached cannot be upgraded or downgraded.
400	InvalidPeriodType.ValueNotSupported	The specified parameter PeriodType is invalid.	The error message returned because the specified PeriodType parameter is invalid.
403	ResourcesNotInSameZone	The specified instance and dedicated host are not in the same zone.	The error message returned because the specified instance and the dedicated host are not in the same region.
403	InvalidDisk.SystemDiskSize	The specified SystemDiskSize beyond the permitted range.	The error message returned because the specified system disk size exceeds the upper limit.
400	InvalidClientToken.ValueNotSupported	The ClientToken provided is invalid.	The error message returned because the specified ClientToken parameter is invalid.
400	OperationDenied	The current user does not support this operation.	The error message returned because your account does not support the operation.
403	InsufficientBalance	Your account does not have enough balance.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.

HttpCode	Error code	Error message	Description
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or because you are not authorized to manage instances of the specified instance type.
400	InvalidParam.Tenancy	The specified Tenancy is invalid.	The error message returned because the specified Tenancy parameter is invalid.
403	MaxEniIpv6IpsCountExceeded	%s	The error message returned because the maximum number of IPv6 addresses that can be assigned to the ENI has been reached.
403	InvalidIp.IpRepeated	%s	The error message returned because the specified IP address already exists.
403	InvalidIp.IpAssigned	%s	The error message returned because the specified IP address is already assigned.
403	InvalidIp.Address	%s	The error message returned because the specified IPv6 address is invalid.
403	InvalidOperation.Ipv4CountExceeded	%s	The error message returned because the maximum number of IPv4 addresses has been reached.
403	InvalidOperation.Ipv6CountExceeded	%s	The error message returned because the maximum number of IPv6 addresses has been reached.
403	InvalidOperation.Ipv6NotSupport	%s	The error message returned because IPv6 does not support the operation.
403	InvalidVSwitch.Ipv6NotTurnOn	%s	The error message returned because IPv6 is not enabled on your current vSwitch. Enable the feature and try again.
403	InvalidParam.Amount	%s	The error message returned because the specified Amount parameter is invalid.

HttpCode	Error code	Error message	Description
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified private IP address is invalid.
403	Forbidden.RegionId	%s	The error message returned because the service is unavailable in the current region.
400	IncorrectVpcStatus	The current status of vpc does not support this operation.	The error message returned because the operation is not supported while the VPC is in the current state.
403	QuotaExceed.DeploymentSetInstanceQuotaFull	instance quota in one deployment set exceeded.	The error message returned because the maximum number of instances in the deployment set has been reached.
403	InvalidRegion.NotSupport	The specified region does not support byok.	The error message returned because the bring your own key (BYOK) feature is not supported in this region.
403	UserNotInTheWhiteList	The user is not in byok white list.	The error message returned because you are not in the BYOK whitelist. Try again when you are in the whitelist.
400	InvalidParameter.EncryptedIllegal	The specified parameter Encrypted must be true when kmsKeyId is not empty.	The error message returned because the encryption feature is not enabled after a KMS key ID is specified.
400	IoOptimized.NotSupported	The specified instance must be IoOptimized instance when kmsKeyId is not empty.	The error message returned because I/O optimized instances are not used after a KMS key ID is specified.
404	InvalidParameter.KMSKeyId.NotFound	The specified KMSKeyId does not exist.	The error message returned because the specified DataDisk.N.KMSKeyId parameter does not exist.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
403	SecurityRisk.3DVerification	We have detected a security risk with your default credit or debit card. Please proceed with verification via the link in your email.	The error message returned because risks are detected in your default credit card or debit card. Click the link in the email for verification.

HttpCode	Error code	Error message	Description
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
404	InvalidDiskIds.NotPortable	The specified DiskId is not portable.	The error message returned because the specified disk is not removable.
403	QuotaExceed.Tags	%s	The error message returned because the maximum number of tags has been reached.
400	InvalidHttpEndpoint.NotSupported	The specified HttpEndpoint not supported, you can use enabled(default) or disabled.	The error message returned because the specified HttpEndpoint parameter is invalid. Valid values of this parameter: enabled and disabled. Default value: enabled.
400	InvalidHttpTokens.NotSupported	The specified HttpTokens not supported, you can use optional(default) or required.	The error message returned because the specified HttpTokens parameter is invalid. Valid values of this parameter: optional or required. Default value: optional.
400	InvalidHttpPutResponseHopLimit.NotSupported	The specified HttpPutResponseHopLimit not supported, more than 1 and less than 64 is reasonable.	The error message returned because the specified HttpPutResponseHopLimit parameter is invalid. The value must be in the range of 1 to 64.

2.1.2.1.4.2. CreateInstance

You can call this operation to create an ECS instance.

Description

Note You can call the DescribeAvailableResource operation to query available resources in a specific region or zone. If you want to create multiple instances at a time that automatically enter the Running state, we recommend that you call the RunInstances operation.

When you create an ECS instance, take note of the following items:

- **Instance type**:

- You can use the `IoOptimized` parameter to specify whether to create an I/O optimized instance.
- Select an appropriate instance type. For the performance data about instance types, see Instance families in ECS Product Introduction or call the DescribeInstanceTypes operation.
- You can call the DescribeAvailableResource operation to query available resources in the specified region or zone.

- **Image**:
  - The image determines the system disk configurations of the new instance. The system disk of the new instance is a clone of the specified image.
  - If the instance memory size is 512 MiB, you cannot use Windows Server images except for Windows Server Semi-Annual Channel images.
  - If the instance memory size is 4 GiB or larger, you cannot use 32-bit OS images.
- **Network type**:
  - Each VPC-type instance must be connected to only one vSwitch.
  - If `VSwitchId` is specified, the security group specified by `SecurityGroupId` and the vSwitch specified by `VSwitchId` must belong to the same VPC.
  - The value of `PrivateIpAddress` depends on the value of `VSwitchId` and cannot be specified separately. If you specify both `VSwitchId` and `PrivateIpAddress`, the IP address specified by `PrivateIpAddress` must be available in the CIDR block of the specified vSwitch.
- **Security group**:
  - You must call the CreateSecurityGroup operation to create a security group before you can create an instance.
  - The maximum number of instances that a security group can contain depends on the security group type.
  - Instances in the same security group can communicate with each other over the internal network. By default, instances in different security groups cannot communicate with each other. However, you can allow communication between instances by authorizing mutual access between their security groups. For more information, see AuthorizeSecurityGroup and AuthorizeSecurityGroupEgress in ECS Developer Guide.
- **Storage**:
  - The instance is assigned a system disk whose capacity is based on the specified image. The capacity of the system disk must be at least `20 GiB and greater than or equal to the size of the image`. For more information about system disk categories, see the description of the `SystemDisk.Category` parameter.
  - When the system disk of an instance is a basic disk (`cloud`), an ultra disk (`cloud_efficiency`), or a standard SSD (`cloud_ssd`), the data disks of the instance cannot be local SSDs (`ephemeral_ssd`).
  - The system disks of I/O optimized instances can only be ultra disks (`cloud_efficiency`) or standard SSDs (`cloud_ssd`).
  - The maximum capacity of data disks varies based on their categories. For more information, see the description of the `DataDisk.N.Size` parameter.
  - A maximum of 16 data disks can be attached to each instance. The mount points of data disks are allocated by the system in alphabetical order from /dev/xvdb to /dev/xvdz.

- **User data**: If the instance type supports user data, you can use the UserData parameter to pass in user data. User data must be encoded in Base64. We recommend that you do not pass in confidential information such as passwords and private keys in the plaintext format. This is because the system does not encrypt the user data specified in the `UserData` value when API requests are transmitted. If you must pass in confidential information, we recommend that you encrypt and Base64-encode the information before you pass it in. Then you can decode and decrypt the information in the same way within the instance.
- **Others**: When you call API operations by using Apsara Stack Command Line Interface (CLI) and SDKs, you must delete the periods (.) from input parameters before you use them. For example, use `SystemDiskCategory` instead of `SystemDisk.Category` as a request parameter.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateInstance	The operation that you want to perform. Set the value to CreateInstance.
InstanceType	String	Yes	ecs.g6.large	The instance type. • Select an appropriate instance type. For the performance data about instance types, see Instance families in ECS Product Introduction or call the DescribeInstanceTypes operation. • You can call the DescribeAvailableResource operation to query available resources in the specified region or zone.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the instance. You can call the DescribeRegions operation to query the most recent region list.
ImageId	String	No	ubuntu_18_04_64_20G_alibase_20190624.vhd	The ID of the image used to create the instance.
SecurityGroupId	String	No	sg-bp15ed6xe1yxeycg****	The ID of the security group to which to assign the instance. Instances in the same security group can communicate with each other.

Parameter	Type	Required	Example	Description
InstanceName	String	No	2018-12-06T103200Z	The name of the instance. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). If you do not specify this parameter, the instance ID is used as the instance name.
InternetMaxBandwidthIn	Integer	No	50	The maximum inbound bandwidth. Unit: Mbit/s. Valid values: • When the maximum outbound bandwidth is less than or equal to 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to 10 and the default value is 10. • When the maximum outbound bandwidth is greater than 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to the value of `InternetMaxBandwidthOut`, and the default value of InternetMaxBandwidthIn is the value of `InternetMaxBandwidthOut`.
InternetMaxBandwidthOut	Integer	No	5	The maximum outbound bandwidth. Unit: Mbit/s. Valid values: 0 to 100. Default value: 0.

Parameter	Type	Required	Example	Description
HostName	String	No	LocalHostName	The hostname of the instance. • The hostname cannot start or end with a period (,) or a hyphen (-). It cannot contain consecutive periods (.) or hyphens (-). • For a Windows instance, the hostname must be 2 to 15 characters in length and can contain letters, digits, and hyphens (-). The hostname cannot contain periods (.) or contain only digits. • For instances that run other operating systems such as Linux, the hostname must be 2 to 64 characters in length. You can use periods (.) to separate the hostname into multiple segments. Each segment can contain letters, digits, and hyphens (-).
Password	String	No	TestEcs123!	The password of the instance. The password must be 8 to 30 characters in length and include at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `( ) ` ~ ! @ # $ % ^ & * - _ + = | { } [ ] : ; ' < > , . ? /` For a Windows instance, the password cannot start with a forward slash (/). **Note** For security reasons, we recommend that you use HTTPS to send requests if the `Password` parameter is specified.

Parameter	Type	Required	Example	Description
PasswordInherit	Boolean	No	false	Specifies whether to use the password predefined in the image. When you use PasswordInherit, leave Password empty and make sure that the selected image has a password preset.
DeploymentSetId	String	No	ds-bp1brhwhoqinyjd6****	The ID of the deployment set to which to deploy the instance.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The ID of the zone in which to create the instance. You can call the DescribeZones operation to query the most recent zone list. This parameter is empty by default. If you do not specify a zone, the system randomly selects one.
ClusterId	String	No	c-bp67acfmxazb4p****	The ID of the cluster in which to create the instance. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
VlanId	String	No	10	The ID of the virtual local area network (VLAN).
InnerIpAddress	String	No	192.168.*. *	The internal IP address to be assigned to the instance.

Parameter	Type	Required	Example	Description
SystemDisk.Size	Integer	No	40	The size of the system disk. Unit: GiB. Valid values: 20 to 500. The value of this parameter must be at least 20 and greater than or equal to the size of the image. Default value: 40 or the size of the image, whichever is greater.
SystemDisk.Category	String	No	cloud_ssd	The category of the system disk. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud: basic disk For non-I/O optimized instances of retired instance types, the default value is cloud. For other instances, the default value is cloud_efficiency.
SystemDisk.DiskName	String	No	SystemDiskName	The name of the system disk. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
SystemDisk.Description	String	No	TestDescription	The description of the system disk. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
DataDisk.N.Size	Integer	No	2000	The size of data disk N. Valid values of N: 1 to 16. Unit: GiB. Valid values: • Valid values when DataDisk.N.Category is set to cloud_efficiency: 20 to 32768 • Valid values when DataDisk.N.Category is set to cloud_ssd: 20 to 32768 • Valid values when DataDisk.N.Category is set to cloud: 5 to 2000 The value of this parameter must be greater than or equal to the size of the snapshot specified by the `SnapshotId` parameter.
DataDisk.N.SnapshotId	String	No	s-bp17441ohwka0yuh****	The ID of the snapshot used to create data disk N. Valid values of N: 1 to 16. • When the `DataDisk.N.SnapshotId` parameter is specified, the `DataDisk.N.Size` parameter is ignored. The data disk is created based on the size of the specified snapshot. • Use snapshots created after July 15, 2013. Otherwise, an error is returned and your request is rejected.
DataDisk.N.Category	String	No	cloud_ssd	The category of data disk N. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud: basic disk For I/O optimized instances, the default value is cloud_efficiency. For non-I/O optimized instances, the default value is cloud.

Parameter	Type	Required	Example	Description
DataDisk.N.DiskName	String	No	DataDiskName	The name of data disk N. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
DataDisk.N.Description	String	No	TestDescription	The description of data disk N. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.
DataDisk.N.Device	String	No	null	The mount point of data disk N. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
DataDisk.N.DeleteWithInstance	Boolean	No	true	Specifies whether to release data disk N when the instance is released. Default value: true.
DataDisk.N.Encrypted	Boolean	No	false	Specifies whether to encrypt data disk N. Default value: false.
DataDisk.N.KMSKeyId	String	No	0e478b7a-4262-4802-b8cb-00d****	The ID of the KMS key to be used by data disk N.
NodeControllerId	String	No	null	The ID of the node controller.
Description	String	No	InstanceTest	The description of the instance. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
VSwitchId	String	No	vsw-bp1s5fnvk4gn2tws0****	The ID of the vSwitch to which to connect the instance. This parameter is required when you create a VPC-type instance.
PrivateIpAddress	String	No	172.16.236.**	The private IP address to be assigned to the instance. The private IP address must be an available IP address in the CIDR block of the vSwitch.
IoOptimized	String	No	optimized	Specifies whether the instance is I/O optimized. Valid values: • none: The instance is not I/O optimized. • optimized: The instance is I/O optimized.
UseAdditionalService	Boolean	No	true	Specifies whether to use the virtual machine system configuration provided by Apsara Stack (Windows: NTP and KMS. Linux: NTP and YUM).
Tag.N.value	String	No	null	The value of tag N. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	null	The key of tag N. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the instance, disks, and primary ENI. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the instance, disks, and primary ENI. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
UserData	String	No	ZWNobyBoZWxsbyBlY3Mh	The user data of the instance. User data must be encoded in Base64. The maximum size of raw data is 16 KB.
KeyPairName	String	No	KeyPairTestName	The name of the key pair to be bound to the instance. • For Windows instances, this parameter is ignored and is empty by default. The `Password` parameter takes effect even if the KeyPairName parameter is specified. • For Linux instances, the username and password authentication method is disabled by default. To make the instances more secure, we recommend that you use key pairs for logons.
RamRoleName	String	No	RAMTestName	The name of the instance RAM role to be attached to the instance. You can call the ListRoles operation provided by RAM to query the instance RAM roles that you created.

Parameter	Type	Required	Example	Description
SecurityEnhancementStrategy	String	No	Active	Specifies whether to enable security hardening. Valid values: • Active: enables security hardening. This value is applicable only to public images. • Deactive: disables security hardening. This value is applicable to all images.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the instance.
HpcClusterId	String	No	hpc-bp67acfmxazb4p****	The ID of the HPC cluster to which to assign the instance.
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include whether required parameters are specified, the request format, service limits, and available ECS resources. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The request is checked, and the instance is created if the check succeeds.
DedicatedHostId	String	No	dh-bp67acfmxazb4p****	The ID of the dedicated host on which to create the instance. You can call the DescribeDedicatedHosts operation to query the list of dedicated host IDs.
CreditSpecification	String	No	Standard	The performance mode of the burstable instance. Valid values: • Standard: standard mode • Unlimited: unlimited mode This parameter is empty by default.

Parameter	Type	Required	Example	Description
DeletionProtection	Boolean	No	false	The release protection attribute of the instance. This parameter specifies whether you can use the ECS console or call the DeleteInstance operation to release the instance. Default value: false. Valid values: • true: enables release protection. • false: disables release protection. **Note** This attribute can protect instances only against manual releases, not against automatic releases.
Affinity	String	No	default	Specifies whether to associate the instance on a dedicated host with the dedicated host. Valid values: • default: does not associate the instance with the dedicated host. When you restart an instance in the No Fees for Stopped Instances (VPC-Connected) state, the instance is automatically deployed to another dedicated host in the automatic deployment resource pool if the available resources of the original dedicated host are insufficient. • host: associates the instance with the dedicated host. When you restart an instance in the No Fees for Stopped Instances (VPC-Connected) state, the instance still resides on the original dedicated host. if the available resources of the original dedicated host are insufficient, the instance fails to be restarted. Default value: default.

Parameter	Type	Required	Example	Description
Tenancy	String	No	default	Specifies whether to create the instance on a dedicated host. Valid values: • default: creates the instance on a non-dedicated host. • host: creates the instance on a dedicated host. If you do not specify `DedicatedHostId`, Apsara Stack automatically selects a dedicated host to deploy the instance. Default value: default.
StorageSetId	String	No	ss-bp1j4i2jdf3owlhe****	The ID of the storage set.
StorageSetPartitionNumber	Integer	No	2	The maximum number of partitions in the storage set. Valid values: greater than or equal to 2.

Response parameters

Parameter	Type	Example	Description
InstanceId	String	i-bp67acfmxazb4p****	The ID of the instance.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TradePrice	Float	0.165	**Note** This parameter is not supported.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateInstance
&RegionId=cn-qingdao-env17-d01
&ImageId=ubuntu_18_04_64_20G_alibase_20190624.vhd
&SecurityGroupId=sg-bp15ed6xe1yxeycg****
&HostName=LocalHostName
&InstanceType=ecs.g6.large
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateInstanceResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
      <InstanceId>i-bp67acfmxazb4p****</InstanceId>
</CreateInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "InstanceId": "i-bp67acfmxazb4p****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorized.	The error message returned because you are not authorized to use the specified instance type.
400	InvalidInternetChargeType.ValueNotSupported	The specified InternetChargeType is not valid.	The error message returned because the specified billing method for network usage is invalid.
400	InvalidParameter	The specified parameter "InternetMaxBandwidthOut" is not valid.	The error message returned because the specified InternetMaxBandwidthOut parameter is invalid.
400	InvalidSystemDiskCategory.ValueNotSupported	The specified parameter " SystemDisk.Category " is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
404	IoOptimized.NotSupported	The specified instancetype is not support IoOptimized instance	The error message returned because the specified instance type is not I/O optimized.
400	InvalidDataDiskSize.ValueNotSupported	The specified DataDisk.n.Size beyond the permitted range, or the capacity of snapshot exceeds the size limit of the specified disk category.	The error message returned because the specified DataDisk.N.Size parameter is invalid or the snapshot size exceeds the maximum capacity allowed for of the specified category.

HTTP status code	Error code	Error message	Description
403	InvalidDiskCategory.NotSupported	The specified disk category is not support the specified instance type.	The error message returned because the specified disk category does not support the instance type.
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or you are not authorized to manage instances of the specified instance type.
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
400	InvalidDescription.Malformed	The specified parameter "Description" is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidHostName.Malformed	The specified parameter "HostName" is not valid.	The error message returned because the specified HostName parameter is invalid.
400	InvalidPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.
400	InvalidPasswordParam.Mismatch	The input password should be null when passwdInherit is true.	The error message returned because the Password parameter is specified when PasswdInherit is set to true.
400	InvalidSystemDiskCategory.ValueNotSupported	The specified parameter "SystemDisk.Category" is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
400	InvalidDiskName.Malformed	The specified parameter "SystemDisk.DiskName or DataDisk.n.DiskName" is not valid.	The error message returned because the specified SystemDisk.DiskName or DataDisk.N.DiskName parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidDiskDescription.Malformed	The specified parameter "SystemDisk.DiskDescription" or "DataDisk.n.Description" is not valid.	The error message returned because the specified SystemDisk.Description or DataDisk.N.Description parameter is invalid.
400	InvalidDataDiskCategory.ValueNotSupported	The specified parameter "DataDisk.n.Category" is not valid.	The error message returned because the specified DataDisk.N.Category parameter is invalid.
404	InvalidDataDiskSnapshotId.NotFound	The specified parameter "DataDisk.n.SnapshotId" is not valid.	The error message returned because the specified DataDisk.N.SnapshotId parameter is invalid.
400	InvalidDataDevice.Malformed	The specified parameter "DataDisk.n.Device" is not valid.	The error message returned because the specified DataDisk.N.Device parameter is invalid.
400	InvalidNodeControllerId.Malformed	The specified parameter "NodeControllerId" is not valid.	The error message returned because the specified NodeControllerId parameter is invalid.
400	InvalidInnerIpAddress.Malformed	The specified parameter "InnerIpAddress" is not valid.	The error message returned because the specified InnerIpAddress parameter is invalid.
400	InvalidInnerIpAddress.Unusable	The specified InnerIpAddress is already used or not found in usable ip range.	The error message returned because the specified internal IP address is unavailable.
400	OperationDenied	The specified parameter "VlanId" is not valid or vlan has not enough IP address.	The error message returned because the specified VlanId parameter is invalid or available IP addresses in the specified VLAN are insufficient.
400	InvalidParameter.Conflict	The specified image does not support the specified instance type.	The error message returned because the specified image does not support the specified instance type.
400	ImageNotSupportCloudInit	The specified image does not support cloud-init.	The error message returned because the specified image does not support cloud-init.

HTTP status code	Error code	Error message	Description
400	InvalidSnapshotId.BasedSnapshotTooOld	The specified snapshot is created before 2013-07-15.	The error message returned because the specified snapshot was created before July 15, 2013.
400	QuotaExceed.AfterpayInstance	The maximum number of Pay-As-You-Go instances is exceeded: %s	The error message returned because the pay-as-you-go resources of the specified instance type are insufficient. Reduce the number of instances to be created.
403	ImageNotSubscribed	The specified image has not be subscribed.	The error message returned because you have not subscribed to the specified Alibaba Cloud Marketplace image.
400	InvalidMarketImageChargeType.NotSupport	The specified chargeType of marketImage is unsupported.	The error message returned because the billing method of the Alibaba Cloud Marketplace image is not supported.
403	OperationDenied	The specified Image is disabled or is deleted.	The error message returned because the specified image has been disabled or deleted.
403	InvalidSystemDiskCategory.ValueUnauthorized	The disk category is not authorized.	The error message returned because you are not authorized to use the specified disk category.
403	InvalidSnapshotId.NotReady	The specified snapshot has not completed yet.	The error message returned because the specified snapshot is being created.
403	OperationDenied	The specified snapshot is not allowed to create disk.	The error message returned because the specified snapshot cannot be used to create disks.
403	InstanceDiskCategoryLimitExceed	The total size of specified disk category in an instance exceeds.	The error message returned because the total capacity of disks of the specified category exceeds the maximum capacity allowed for an instance.
403	InvalidDevice.InUse	The specified device has been occupied.	The error message returned because the specified device already has a disk attached.

HTTP status code	Error code	Error message	Description
403	ImageRemovedInMarket	The specified market image is not available, Or the specified user defined image includes product code because it is based on an image subscribed from marketplace, and that image in marketplace includeing exact the same product code has been removed.	The error message returned because the specified Alibaba Cloud Marketplace image is unavailable, or because the specified custom image contains the product code of the Alibaba Cloud Marketplace image from which the custom image is derived and the Alibaba Cloud Marketplace image has been removed from Alibaba Cloud Marketplace.
404	InvalidClusterId.NotFound	The ClusterId provided does not exist in our records.	The error message returned because the specified ClusterId parameter does not exist.
403	OperationDenied	The creation of Instance to the specified Zone is not allowed.	The error message returned because instances cannot be created in the specified zone.
403	CategoryNotSupported	The specified zone does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified zone.
403	OperationDenied	The specified Zone or cluster does not offer the specified disk category or the speicified zone and cluster do not match.	The error message returned because the specified disk category is unavailable in the specified zone or cluster, or because the specified zone and cluster do not correspond to each other.
403	OperationDenied.NoStock	The requested resource is sold out in the specified zone; try other types of resources or other regions and zones.	The error message returned because the requested resources are insufficient in the specified zone.
400	InvalidInstanceName.Malformed	The specified parameter "InstanceName" is not valid.	The error message returned because the specified InstanceName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.

HTTP status code	Error code	Error message	Description
400	InvalidDiskDescription.Malformed	The specified parameter "SystemDisk.DiskDescription or DataDisk.n.Description" is not valid.	The error message returned because the specified SystemDisk.Description or DataDisk.N.Description parameter is invalid.
403	QuotaExceed.PortableCloudDisk	The quota of portable cloud disk exceeds.	The error message returned because the maximum number of removable disks has been reached.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	OperationDenied	Sales of this resource are temporarily suspended in the specified region; please try again later.	The error message returned because the requested resource is unavailable in the specified region. Try again later.
400	InvalidParameter.Conflict	The specified region and cluster do not match.	The error message returned because the specified region and cluster do not correspond to each other.
403	SecurityGroupInstanceLimitExceed	The maximum number of instances in a security group is exceeded.	The error message returned because the maximum number of instances in the specified security group has been reached.
403	NodeControllerUnavailable	The Node Controller is temporarily unavailable.	The error message returned because the node controller is unavailable.
403	RegionUnauthorized	There is no authority to create instance in the specified region.	The error message returned because you are not authorized to create instances in the specified region.
403	CategoryNotSupported	The specified Zone or cluster does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified zone or cluster.
403	InvalidSnapshotId.NotDataDiskSnapshot	The specified snapshot is system disk snapshot.	The error message returned because the specified snapshot is a system disk snapshot.

HTTP status code	Error code	Error message	Description
403	CategoryNotSupported	The specified cluster does not offer the specified disk category.	The error message returned because the specified disk category is unavailable in the specified cluster.
404	InvalidVSwitchId.NotFound	Specified virtual switch does not exist.	The error message returned because the specified VSwitchId parameter does not exist.
400	InvalidParameter.Mismatch	Specified security group and virtual switch are not in the same VPC.	The error message returned because the specified security group and vSwitch do not belong to the same VPC.
400	InvalidNetworkType.Mismatch	Specified parameter "InternetChargeType" conflict with instance network type.	The error message returned because the network type of the instance does not support the specified billing method for network usage.
400	InvalidPrivateIpAddress	Specified private IP address is not in the CIDR block of virtual switch.	The error message returned because the specified private IP address is not within the CIDR block of the vSwitch.
400	InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	The error message returned because the specified private IP address is already in use. Try another IP address.
400	QuotaExceeded.PrivateIpAddress	Don't have enough private IPs in this switch	The error message returned because all the private IP addresses on the vSwitch are already in use. Try another vSwitch.
400	QuotaExceeded	Living instances quota exceeded in this VPC.	The error message returned because the maximum number of active instances has been reached.
400	IncorrectVSwitchStatus	The current status of virtual switch does not support this operation.	The error message returned because the specified vSwitch is in the Pending state and cannot be deleted.
400	InvalidParameter.Mismatch	Specified virtual switch is not in the specified zone.	The error message returned because the specified vSwitch does not exist in the specified zone.

HTTP status code	Error code	Error message	Description
400	ResourceNotAvailable	Resource you requested is not available in this region or zone.	The error message returned because VPC is not supported by the specified region or zone.
400	MissingParameter	The input parameter "VSwitchId" that is mandatory for processing this request is not supplied.	The error message returned because the VSwitchId parameter is not specified.
400	InvalidDiskCategory.Mismatch	The specified disk categories' combination is not supported.	The error message returned because the combination of the specified disk categories is not supported.
403	DeleteWithInstance.Conflict	The specified disk is not a portable disk and cannot be set to DeleteWithInstance attribute.	The error message returned because the specified disk is not removable and cannot be released along with the instance.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
403	InstanceDiskNumLimitExceed	The number of specified disk in an instance exceeds.	The error message returned because the number of specified disks exceeds the upper limit.
403	IoOptimized.NotSupported	The specified image is not support IoOptimized Instance.	The error message returned because the specified image does not support I/O optimized instances.
403	ImageNotSupportInstanceType	The specified image don't support the InstanceType instance.	The error message returned because the specified image does not support this instance type.
400	InvalidIoOptimizedValue.ValueNotSupported	IoOptimized value not supported.	The error message returned because the specified IoOptimized parameter is invalid.
404	OperationDenied	Another Instance has been creating	The error message returned because no other instances can be created while an instance is being created.
403	InvalidDiskSize.TooSmall	Specified disk size is less than the size of snapshot	The error message returned because the specified disk size is smaller than the snapshot size.

HTTP status code	Error code	Error message	Description
403	OperationDenied	The type of the disk does not support the operation	The error message returned because the operation is not supported by the specified disk category.
404	InvalidInstanceChargeType.NotFound	The InstanceChargeType does not exist in our records	The error message returned because the specified InstanceChargeType parameter does not exist.
400	MissingParamter	The specified parameter "Period" is not null.	The error message returned because the Period parameter is not specified.
400	InvalidPeriod	The specified period is not valid.	The error message returned because the specified Period parameter is invalid.
403	InvalidDiskCategory.Mismatch	The specified disk categories combination is not supported.	The error message returned because the combination of the specified disk categories is not supported.
403	IoOptimized.NotSupported	Vpc is not support IoOptimized instance.	The error message returned because I/O optimized instances are not supported in the VPC.
400	InvalidDataDiskCategory.ValueNotSupported	The specified parameter " DataDisk.n.Category " is not valid.	The error message returned because the specified DataDisk.N.Category parameter is invalid.
400	InstanceDiskCategoryLimitExceed	The specified DataDisk.n.Size beyond the permitted range, or the capacity of snapshot exceeds the size limit of the specified disk category.	The error message returned because the specified DataDisk.N.Size parameter is invalid or the snapshot size exceeds the maximum capacity allowed for the specified disk category.
403	OperationDenied	The resource is out of usage.	The error message returned because the instance is not in the Running state. Start the instance or check whether the operation is valid.
403	QuotaExceed.BuyImage	The specified image is from the image market, You have not bought it or your quota has been exceeded.	The error message returned because you have not purchased the specified Alibaba Cloud Marketplace image or your image quota has been used up.

HTTP status code	Error code	Error message	Description
404	DependencyViolation.IoOptimized	The specified instancetype must be IoOptimized instance.	The error message returned because the specified instance type is not I/O optimized.
404	PaymentMethodNotFound	No payment method has been registered on the account.	The error message returned because you have not configured the payment method for your account.
404	HOSTNAME_ILLEGAL	hostname is not valid.	The error message returned because the specified HostName parameter is invalid.
404	InvalidSystemDiskSize.LessThanImageSize	The specified parameter SystemDisk.Size is less than the image size.	The error message returned because the specified system disk size is smaller than the size of the image.
404	InvalidSystemDiskSize.LessThanMinSize	The specified parameter SystemDisk.Size is less than the min size.	The error message returned because the specified system disk size is smaller than the minimum size.
404	InvalidSystemDiskSize.MoreThanMaxSize	The specified SystemDisk.Size parameter exceeds the maximum size.	The error message returned because the specified system disk size exceeds the maximum size.
404	InvalidDataDiskSnapshotId.NotFound	The specified parameter DataDisk.n.SnapshotId is not valid.	The error message returned because the specified DataDisk.N.SnapshotId parameter is invalid.
403	InvalidVSwitchId.NotFound	The VSwitchId provided does not exist in our records.	The error message returned because the specified VSwitchId parameter does not exist.
400	InvalidParameter	The specified vm bandwidth is not valid.	The error message returned because the specified virtual machine bandwidth is invalid.
400	InvalidSystemDiskCategory.ValueNotSupported	The specified parameter SystemDisk.Category is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
403	InvalidParameter.ResourceOwnerAccount	ResourceOwnerAccount is Invalid.	The error message returned because the specified ResourceOwnerAccount parameter is invalid.

HTTP status code	Error code	Error message	Description
404	InvalidSystemDiskSize	The specified parameter SystemDisk.Size is invalid.	The error message returned because the specified SystemDisk.Size parameter is invalid.
400	InvalidParameter.Bandwidth	The specified parameter Bandwidth is not valid.	The error message returned because the specified bandwidth is invalid.
400	InvalidIPAddress.AlreadyUsed	The specified IPAddress is already used by other resource.	The error message returned because the specified IP address is already in use. Try another one.
403	InvalidUserData.Forbidden	User not authorized to input the parameter "UserData", please apply for permission "UserData"	The error message returned because you are not authorized to manage user data. Apply for the permission first.
400	InvalidUserData.SizeExceeded	The specified parameter "UserData" exceeds the size.	The error message returned because the size of user data specified in the UserData value exceeds the upper limit.
400	InvalidUserData.NotSupported	The specified parameter "UserData" only support the vpc and IoOptimized Instance.	The error message returned because the specified UserData parameter is not supported. UserData is supported only on VPC-type instances and I/O optimized instances.
403	Zone.NotOpen	The specified zone is not granted to you to buy resources yet.	The error message returned because you are not authorized to purchase resources in the specified zone.
403	Zone.NotOnSale	The specified zone is not available for purchase.	The error message returned because the requested resources are unavailable in the specified zone. Change the resource type or select a different zone.
403	InvalidClusterId.NotFound	The specified clusterId does not exist.	The error message returned because the specified ClusterId parameter does not exist.
403	InvalidInstanceType.ZoneNotSupported	The specified zone does not support this instancetype.	The error message returned because the specified instance type is not supported in the specified zone.

HTTP status code	Error code	Error message	Description
400	InstanceDiskNumber.LimitExceed	The total number of specified disk in an instance exceeds.	The error message returned because the number of specified disks exceeds the upper limit.
400	Account.Arrearage	Your account has an outstanding payment.	The error message returned because you have overdue payments in your account.
400	InvalidDiskCategory.ValueNotSupported	The specified parameter "DiskCategory" is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
400	InvalidAutoRenewPeriod.ValueNotSupported	The specified autoRenewPeriod is not valid.	The error message returned because the specified AutoRenewPeriod parameter is invalid.
400	QuotaExceed.AfterpayInstance	The maximum number of Pay-As-You-Go instances is exceeded.	The error message returned because the pay-as-you-go resources of the specified instance type are insufficient. Reduce the number of instances to be created.
400	InvalidSpotStrategy	The specified SpotStrategy is not valid.	The error message returned because the specified SpotStrategy parameter is invalid.
400	InvalidSpotParam.EmptyZoneID	The specified ZoneId is empty when SpotStrategy is set.	The error message returned because the ZoneId parameter is not specified while the SpotStrategy parameter is specified.
400	InvalidSpotPriceLimit	The specified SpotPriceLimitis not valid.	The error message returned because the specified SpotPriceLimit parameter is invalid.
400	InvalidSpotDuration	The specified SpotDuration is not valid.	The error message returned because the specified SpotDuration parameter is invalid.
400	InvalidSpotAuthorized	The specified Spot param is unauthorized.	The error message returned because you are not authorized to set the SpotDuration parameter.

HTTP status code	Error code	Error message	Description
400	InvalidSpotPrepaid	The specified Spot type is not support PrePay Instance.	The error message returned because preemptible instances do not support the subscription billing method.
400	InvalidSpotAliUid	The specified UID is not authorized to use SPOT instance.	The error message returned because you are not authorized to create preemptible instances.
403	InvalidPayMethod	The specified pay method is not valid.	The error message returned because the specified payment method is invalid.
403	OperationDenied.ImageNotValid	The specified Image is disabled or is deleted.	The error message returned because the specified image does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidParameter.Bandwidth	%s	The error message returned because the specified bandwidth is invalid.
400	InvalidDataDiskCategory.ValueNotSupported	%s	The error message returned because the specified DataDisk.N.Category parameter is invalid.
400	InvalidSystemDiskCategory.ValueNotSupported	%s	The error message returned because the operation is not supported by the specified system disk category.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	InvalidInternetChargeType.ValueNotSupported	%s	The error message returned because the specified billing method for network usage is not supported. Check whether the parameter is correct.
400	InvalidInstanceType.ValueNotSupported	%s	The error message returned because the operation is not supported by the specified instance type.

HTTP status code	Error code	Error message	Description
403	InstanceType.Offline	%s	The error message returned because the operation is not supported when the instance type is retired or resources of the instance type are insufficient.
400	RegionUnauthorized	%s	The error message returned because you are not authorized to perform the operation in the specified region.
500	InternalError	%s	The error message returned because an internal error has occurred.
400	Zone.NotOnSale	%s	The error message returned because the requested resources are unavailable in the specified zone.
400	InvalidSystemDiskSize.ValueNotSupported	%s	The error message returned because the specified system disk size is invalid.
400	InvalidDataDiskSize.ValueNotSupported	%s	The error message returned because the specified data disk size is invalid.
403	DependencyViolation.WindowsInstance	The instance creating is window, cannot use ssh key pair to login.	The error message returned because the specified instance is a Windows instance and does not support logons based on SSH key pairs.
400	InvalidInstanceType.ValueNotSupported	The specified parameter "KeyPairName" only support IoOptimized Instance.	The error message returned because non-I/O optimized instances do not support SSH key pairs.
403	RealNameAuthenticationError	Your account has not passed the real-name authentication yet.	The error message returned because you have not completed real-name verification. Complete real-name verification and try again.
403	InvalidNetworkType.MismatchRamRole	Ram role cannot be applied to instances of Classic network type.	The error message returned because an instance RAM role can be used only for instances in VPCs, not for instances in the classic network.

HTTP status code	Error code	Error message	Description
403	InvalidUser.PassRoleForbidden	The RAM user does not have the privilege to pass a RAM role.	The error message returned because the RAM user is not authorized to pass the RAM role.
404	InvalidRamRole.NotFound	The specified RAMRoleName does not exist.	The error message returned because the specified RamRoleName parameter does not exist.
400	OperationDenied	The specified InstanceType or Zone is not available or not authorized.	The error message returned because the specified instance type or zone is unavailable or unauthorized.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
403	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the operation is not supported while the VPC is in the current state.
400	InvalidParameter.EncryptedIllegal	%s	The error message returned because the specified parameter is invalid. Check whether your encryption operation is valid.
400	InvalidParameter.EncryptedNotSupported	%s	The error message returned because the specified parameter is invalid and your encryption operation is not supported.
400	EncryptedOption.Conflict	%s	The error message returned because the parameter used to encrypt disks is not supported.

HTTP status code	Error code	Error message	Description
400	InvalidSpotPriceLimit.LowerThanPublicPrice	The specified parameter "soptPriceLimit" can't be lower than current public price.	The error message returned because the specified value of SpotPriceLimit is lower than the current market price.
400	InvalidHpcClusterId.Unnecessary	The specified HpcClusterId is unnecessary.	The error message returned because the HpcClusterId parameter is specified.
400	InvalidVSwitchId.Necessary	The VSwitchId is necessary.	The error message returned because the VSwitchId parameter is not specified.
400	InvalidHpcClusterId.Necessary	The HpcClusterId is necessary.	The error message returned because the HpcClusterId parameter is not specified.
400	InvalidHpcClusterId.NotFound	The specified HpcClusterId is not found.	The error message returned because the specified HpcClusterId parameter does not exist.
400	InvalidHpcClusterId.Creating	The specified HpcClusterId is creating.	The error message returned because the specified HPC cluster is being created.
400	QuotaExceeded.PrivateIpAddress	Don't have enough private IPs in this switch.	The error message returned because no private IP address is available in the CIDR block of the vSwitch. Try another vSwitch.
400	InvalidPeriodUnit.ValueNotSupported	The specified parameter PeriodUnit is not valid.	The error message returned because the specified PeriodUnit parameter is invalid.
400	IncorrectImageStatus	Encrypted snapshots do not support this operation.	The error message returned because the operation is not supported by encrypted snapshots.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
400	InvalidSecurityGroup.NotInDefaultVpc	%s	The error message returned because the specified security group is not in the default VPC.

HTTP status code	Error code	Error message	Description
400	VpcNotFound	Vpc is not found according to the specified VSwitch or the vpc does not belong to you.	The error message returned because the specified vSwitch does not belong to any VPC, or the corresponding VPC does not belong to you.
403	InvalidParameter.NotMatch	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
403	OperationDenied.InvalidNetworkType	%s	The error message returned because the operation is not supported by the specified network type.
400	InvalidSpotInterruptionBehavior	%s	The error message returned because the specified SpotInterruptionBehavior parameter is invalid.
403	InvalidSpotInterruptionBehavior.ClassicNetworkNotSupport	The specified SpotInterruptionBehavior does not support Classic network Instance.	The error message returned because the operation is not supported by instances in the classic network.
403	InvalidSpotInterruptionBehavior.LocalDiskNotSupport	The specified SpotInterruptionBehavior does not support local disk instance.	The error message returned because the operation is not supported by instances that have local disks attached.
400	OperationDenied.IllegalPaymentPolicy	The current payment policy is illegal, please connect your service provider to authenticate relative agreement.	The error message returned because the current payment policy is invalid. Contact your service provider for authentication.
400	InvalidDeploymentOnHost	%s	The error message returned because the instance cannot be deployed in the specified deployment set.
400	InvalidInstanceChargeType.NotSupport	The Dedicated host not support the specified Instance charge type.	The error message returned because the dedicated host does not support instances that use the specified billing method.
400	InvalidNetworkType.NotSupported	The classic networkType not support create ECS on dedicatedHost	The error message returned because the dedicated host does not support instances in the classic network.

HTTP status code	Error code	Error message	Description
400	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
400	InvalidDedicatedHostStatus.NotSupport	Operation denied due to dedicated host status.	The error message returned because the operation is not supported while the dedicated host is in the current state.
400	IncorrectDedicatedHostStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
400	ChargeTypeViolation.PostPaidDedicatedHost	Prepaid instance onto postpaid dedicated host is not allowed	The error message returned because subscription instances cannot be deployed on pay-as-you-go dedicated hosts.
400	InvalidPeriod.ExceededDedicatedHost	Instance expired date can't exceed dedicated host expired date.	The error message returned because the expiration date of the instance is later than that of the dedicated host.
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorize.	The error message returned because you are not authorized to use the specified instance type.
400	DedicatedHostType.Unmatched	The specified DedicatedHostType doesn? t match the instance type.	The error message returned because the specified dedicated host type does not correspond to the specified instance type.
400	ChargeTypeViolation.PostPaidDedicatedHost	Prepaid instance onto postpaid dedicated host is not allowed.	The error message returned because subscription instances cannot be deployed on pay-as-you-go dedicated hosts.
400	InvalidParam.Tenancy	The specified Tenancy is invalid.	The error message returned because the specified Tenancy parameter is invalid.
403	OperationDenied.ImageNotValid	%s	The error message returned because the image does not support the operation.

HTTP status code	Error code	Error message	Description
403	QuotaExceed.PostPaidDisk	Living postPaid disks quota exceeded.	The error message returned because the maximum number of pay-as-you-go disks has been exceeded.
403	QuotaExceed.DeploymentSetInstanceQuotaFull	instance quota in one deployment set exceeded.	The error message returned because the maximum number of instances in the deployment set has been reached.
403	InvalidDiskCategory.NotSupported	The specified disk category is not supported.	The error message returned because the specified disk category does not support the operation.
400	InvalidParameter.CreditSpecification	The specified CreditSpecification is not supported in this region.	The error message returned because the specified credit policy is not supported in the region.
403	OperationDenied.ImageNotValid	the specified image is not published in the region.	The error message returned because the specified image is not available in the region.
403	OperationDenied.ImageNotValid	the specified image is not found in marketplace.	The error message returned because the specified image does not exist in Alibaba Cloud Marketplace.
404	InvalidMarketImage.NotFound	The specified marketplace image does not exist, please change the imageId and try again.	The error message returned because the specified Alibaba Cloud Marketplace image does not exist. Modify the parameter and try again later.
400	InvalidInstanceType.NotSupported	The specified instanceType is not supported by the deployment set.	The error message returned because the specified instance type is not supported by the deployment set. Try another instance type.
400	InvalidVpcZone.NotSupported	Zone of the specified VSwitch is not available for creating, please try in other zones.	The error message returned because the default vSwitch cannot be created in the specified zone. Try another zone.
400	IncorrectDefaultVpcStatus	The status of the default VPC is invalid.	The error message returned because the status of the default VPC is invalid.

HTTP status code	Error code	Error message	Description
404	DeploymentSet.NotFound	The specified deployment set does not exist.	The error message returned because the specified DeploymentSetId parameter does not exist.
403	OperationDenied.LocalDiskUnsupported	The configuration change is not allowed when the specified instance has local disks mounted.	The error message returned because the instance types of instances that have local disks attached cannot be changed.
403	OperationDenied.InconsistentNetwork	The specified security group and vswitch are not in the same vpc.	The error message returned because the specified security group and vSwitch do not belong to the same VPC.
403	OperationDenied	If the network segment of the vswitch is the same as that of its VPC. Therefore, the VPC cannot create other vswitchs across the region.	The error message returned because the VPC and vSwitch have the same CIDR block and no additional vSwitches can be created for other zones of this VPC.
403	DefaultVswitch.Existed	The default vswitch for VPC already exists.	The error message returned because a default vSwitch already exists in the VPC.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	CategoryViolation	The specified instance does not support this operation because of its disk category.	The error message returned because the configurations of instances that have local disks attached cannot be upgraded or downgraded.
403	ResourcesNotInSameZone	The specified instance and dedicated host are not in the same zone.	The error message returned because the specified instance and dedicated host are not located in the same region.
403	InvalidRegion.NotSupport	The specified region does not support byok.	The error message returned because the bring your own key (BYOK) feature is not supported in the region.
403	UserNotInTheWhiteList	The user is not in byok white list.	The error message returned because you are not in the BYOK whitelist. Try again when you are in the whitelist.

HTTP status code	Error code	Error message	Description
400	InvalidParameter.EncryptedIllegal	The specified parameter Encrypted must be true when kmsKeyId is not empty.	The error message returned because the encryption feature is not enabled after a KMS key ID is specified.
400	IoOptimized.NotSupported	The specified instance must be IoOptimized instance when kmsKeyId is not empty.	The error message returned because I/O optimized instances are not used after a KMS key ID is specified.
404	InvalidParameter.KMSKeyId.NotFound	The specified KMSKeyId does not exist.	The error message returned because the specified DataDisk.N.KMSKeyId parameter does not exist.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
403	SecurityRisk.3DVerification	We have detected a security risk with your default credit or debit card. Please proceed with verification via the link in your email.	The error message returned because risks are detected in your default credit card or debit card. Click the link in the email for verification.
403	InvalidDisk.SystemDiskSize	The specified SystemDiskSize beyond the permitted range.	The error message returned because the specified system disk size exceeds the upper limit.
400	InvalidClientToken.ValueNotSupported	The ClientToken provided is invalid.	The error message returned because the specified client token is invalid.
400	OperationDenied	The current user does not support this operation.	The error message returned because your account does not support the operation.
403	InsufficientBalance	Your account does not have enough balance.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified PrivateIpAddress parameter is invalid.
404	InvalidDiskIds.NotPortable	The specified DiskId is not portable.	The error message returned because the specified disk is not removable.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.
401	InvalidRamRole.NotEcsRole	The specified ram role is not authorized for ecs, please check your role policy.	The error message returned because the specified RAM role is not authorized to use ECS. Check your role policy.
400	InvalidHttpEndpoint.NotSupported	The specified HttpEndpoint not supported, you can use enabled(default) or disabled.	The error message returned because the specified HttpEndpoint parameter is invalid. The valid values of this parameter are enabled and disabled. The default value is enabled.
400	InvalidHttpTokens.NotSupported	The specified HttpTokens not supported, you can use optional(default) or required.	The error message returned because the specified HttpTokens parameter is invalid. The valid values of this parameter are optional and required. The default value is optional.
400	InvalidHttpPutResponseHopLimit.NotSupported	The specified HttpPutResponseHopLimit not supported, more than 1 and less than 64 is reasonable.	The error message returned because the specified HttpPutResponseHopLimit parameter is invalid. The value must be in the range of 1 to 64.
400	InvalidPrivateIpAddress.Malformed	Specified private IP address is malformed.	The error message returned because the specified PrivateIpAddress parameter is invalid.

2.1.2.1.4.3. StartInstance

You can call this operation to start an ECS instance. After the operation is called, the instance enters the Starting state.

Description

When you call this operation, take note of the following items:

- The ECS instance to be started must be in the **Stopped** (`Stopped`) state.
- If `OperationLocks` in the DescribeInstances response contains `"LockReason" : "security"` for an instance, the instance is locked for security reasons and cannot be started through calls to this operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	StartInstance	The operation that you want to perform. Set the value to StartInstance.
InstanceId	String	Yes	i-bp67acfmxazb4p****	The ID of the instance that you want to start.
InitLocalDisk	Boolean	No	true	Specifies whether to restore the instance to its initial health status. This parameter is applicable to instances of the instance families such as d1 and i2 that are equipped with local disks. If a local disk of a d1 or i2 instance fails, you can use this parameter to specify whether to restore the instance to its initial health status on startup. Default value: false. Valid values: • true: restores the instance to its initial health status on startup. After the instance is restored to its initial health status, data stored on the local disks of the instance is lost. • false: does not perform any operations and keeps the instance in the current state.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	true	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the DryRunOperation error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=StartInstance
&InstanceId=i-bp67acfmxazb4p****
&InitLocalDisk=true
&<Common request parameters>
```

Sample success responses

`XML` format

```
<StartInstanceResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</StartInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	InsufficientBalance	Your account does not have enough balance.	The error message returned because you have insufficient balance in your account. Add funds to your account and try again.
500	InstanceNotReady	The specified instance is not ready for use	The error message returned because the specified instance cannot be connected for the moment. Try again later.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	DiskError	IncorrectDiskStatus.	The error message returned because the status of the specified disk is invalid.
403	InstanceExpired	The postPaid instance has been expired.Please ensure your account have enough balance.	The error message returned because the pay-as-you-go instance has expired. Make sure that your account balance is sufficient.
403	InstanceExpired	The prePaid instance has been expired.	The error message returned because the subscription instance has expired.

HTTP status code	Error code	Error message	Description
403	InstanceNotReady	The specified instance is not ready for use.	The error message returned because the operation is not supported while the resource is in the current state. Try again later.
403	DiskInArrears	The specified operation is denied as your disk has expired.	The error message returned because the disk has expired due to overdue payments.
403	OperationDenied.NoStock	The requested resource is sold out in the specified zone; try other types of resources or other regions and zones.	The error message returned because the requested resources are insufficient in the specified zone. Try other resource types, regions, or zones.
403	OperationDenied.SpotPriceLowerThanPublicPrice	The spot instance price is lower than public price.	The error message returned because the user-defined maximum hourly price of a preemptible instance is lower than the current market price.
403	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.4.4. StopInstance

You can call this operation to stop an ECS instance in the Running state. After the operation is called, the status of the instance changes to Stopping and then to Stopped.

Description

- If OperationLocks in the DescribeInstances response contains "LockReason" : "security" for an instance, the instance is locked for security reasons and cannot be stopped through calls to this operation.
- To stop an instance of an instance family equipped with local SSDs, take note of the following items:

- After the instance is stopped, data in its local disks is cleared. To ensure data availability, we recommend that you implement data redundancy at the application layer.
- ECS automatically ignores the `ConfirmStop` parameter in the requests to stop instances of other instance families.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	StopInstance	The operation that you want to perform. Set the value to StopInstance.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
ForceStop	Boolean	No	false	Specifies whether to forcibly stop the instance. Default value: false. Valid values: • true: forcibly stops the instance. • false: normally stops the instance.
DryRun	Boolean	No	true	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include the request format, service limits, available ECS resources, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The validity of the request is checked, and the request is made if the check succeeds.

Response parameters

Parameter	Type	Example	Description
RequestId	String	1C488B66-B819-4D14-8711-C4EAAA13AC01	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=StopInstance
&InstanceId=i-bp67acfmxazb4ph***
&ConfirmStop=true
&ForceStop=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<StopInstanceResponse>
      <RequestId>1C488B66-B819-4D14-8711-C4EAAA13AC01</RequestId>
</StopInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "1C488B66-B819-4D14-8711-C4EAAA13AC01"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	DiskError	IncorrectDiskStatus	The error message returned because the status of the specified disk is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HTTP status code	Error code	Error message	Description
403	InstanceType.ParameterMismatch	The input parameter ConfirmStop must be true when an instance have localstorage.	The error message returned because the ConfirmStop parameter is set to false for an instance that uses local storage.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	InvalidInstanceId.NotSupport	Classic network Instance does not support this operation.	The error message returned because the operation is not supported by instances in the classic network.
403	InvalidInstanceId.NotSupport	Pre pay instance does not support this operation.	The error message returned because the operation is not supported by subscription instances.
403	InvalidInstanceId.NotSupport	Local disk instance does not support this operation.	The error message returned because the operation is not supported by instances that use local disks.
403	InvalidInstanceId.NotSupport	Spot instance does not support this operation.	The error message returned because the operation is not supported by preemptible instances.
403	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.4.5. RebootInstance

You can call this operation to restart an instance in the Running state.

Description

- Only instances in the **Running** (`Running`) state can be restarted.
- After the operation is called, the status of the corresponding instance changes to **Starting** (`Starting`).
- Instances can be forcibly restarted. A forced restart (`ForceStop`) is equivalent to powering off traditional servers to restart them. This operation can cause data loss if data in the instance is not written to disks.
- If OperationLocks in the DescribeInstances response contains "LockReason" : "security" for an instance, the instance is locked for security reasons and cannot be restarted through calls to this operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RebootInstance	The operation that you want to perform. Set the value to RebootInstance.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
ForceStop	Boolean	No	false	Specifies whether to forcibly stop the instance to restart it. Default value: false. Valid values: • true: forcibly stops the instance. This operation is equivalent to the typical power-off operation. Cache data that is not written to storage in the instance will be lost. • false: normally stops the instance.
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include the request format, service limits, available ECS resources, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The validity of the request is checked, and the request is made if the check succeeds.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=RebootInstance
&InstanceId=i-bp67acfmxazb4ph***
&ForceStop=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RebootInstanceResponse>
      <RequestId>F2E2C40D-AB09-45A1-B5C5-EB9F5C4E4E4A</RequestId>
</RebootInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "F2E2C40D-AB09-45A1-B5C5-EB9F5C4E4E4A"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.

HTTP status code	Error code	Error message	Description
403	DiskError	IncorrectDiskStatus.	The error message returned because the status of the specified disk is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.4.6. DeleteInstance

You can call this operation to release an ECS instance.

Description

- After an instance is released, all the physical resources used by the instance are recycled. Relevant data is erased and cannot be recovered.
- Disks attached to the instance:
  - The disks for which `DeleteWithInstance` is set to true are released along with the instance.
  - For disks for which `DeleteAutoSnapshot` is set to false, the automatic snapshots are retained.
  - For disks for which `DeleteAutoSnapshot` is set to true, the automatic snapshots are released.
  - Manual snapshots of the disks are retained.
  - If OperationLocks in the DescribeInstances response contains `"LockReason" : "security` for an instance, the instance is locked for security reasons. Even if `DeleteWithInstance` is set to false for the disks attached to the instance, this parameter is ignored and the disks are released along with the instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteInstance	The operation that you want to perform. Set the value to DeleteInstance.
InstanceId	String	Yes	i-bp1g6zv0ce8oghu7k***	The ID of the instance.
Force	Boolean	No	false	Specifies whether to forcibly release the instance in the **Running** (`Running`) state. Default value: false. Valid values: • true: forcibly releases the instance in the **Running** (`Running`) state. This operation is equivalent to the power-off operation. Temporary data in the memory and storage of the instance is erased and cannot be recovered. • false: normally releases the instance. This value is valid only for an instance in the **Stopped** (`Stopped`) state.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteInstance
&InstanceId=i-bp1g6zv0ce8oghu7k****
&Force=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteInstanceResponse>
      <RequestId>928E2273-5715-46B9-A730-238DC996A533</RequestId>
</DeleteInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "928E2273-5715-46B9-A730-238DC996A533"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	ChargeTypeViolation	The operation is not permitted due to charge type of the instance.	The error message returned because the operation is not supported while the instance uses the current billing method.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	DependencyViolation.SLBConfiguring	Specified operation is denied as your instance is using by another product.	The error message returned because the instance is referenced by an SLB instance that is being configured.
400	DependencyViolation.RouteEntry	Specified instance is used by route entry.	The error message returned because custom routing rules still exist in the VPC.
400	InvalidParameter	The input parameter InstanceId is invalid.	The error message returned because the specified InstanceId parameter is invalid.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.

HTTP status code	Error code	Error message	Description
403	IncorrectInstanceStatus.Initializing	The specified instance status does not support this operation.	The error message returned because the instance is being initialized and cannot be released. Try again later.
403	IncorrectInstanceStatus	The specified instance is still attached by volumes.	The error message returned because the specified instance still has data volumes.
403	InvalidOperation.DeletionProtection	%s	The error message returned because the operation is invalid. Disable release protection for the instance first.
403	InvalidOperation.EniLinked	%s	The error message returned because the operation is not supported while the instance is bound with elastic network interfaces (ENIs). You must unbind the ENIs before you can release the instance.

2.1.2.1.4.7. AttachInstanceRamRole

You can call this operation to attach an instance RAM role to one or more instances. An instance can have only one instance RAM role. If an instance already has an instance RAM role, an error is returned when you attach another instance RAM role to the instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AttachInstanceRamRole	The operation that you want to perform. Set the value to AttachInstanceRamRole.
InstanceIds	String	Yes	[“i-bp14ss25xca5ex1u****” , “i-bp154z5o1qjalfse****” , “i-bp10ws62o04ubhvi****” ...]	The IDs of instances. The value can be a JSON array that consists of up to 100 instance IDs. Separate multiple instance IDs with commas (,).

Parameter	Type	Required	Example	Description
RamRoleName	String	Yes	RamRoleTest	The name of the instance RAM role. You can call the ListRoles operation provided by RAM to query the instance RAM roles that you created.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
AttachInstanceRamRoleResults	Array of AttachInstanceRamRoleResult		Details about the results of attaching the instance RAM role.
AttachInstanceRamRoleResult			
Code	String	200	Indicates whether the instance RAM role was attached. If 200 is returned, the instance RAM role was attached. If any other value is returned, the instance RAM role failed to be attached. For more information, see the "Error codes" section.
InstanceId	String	i-bp10ws62o04ubhvi****	The ID of the instance.
Message	String	success	Indicates whether the instance RAM role was attached. If success is returned, the instance RAM role was attached. If any other value is returned, the instance RAM role failed to be attached. For more information, see the "Error codes" section.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the instance RAM role was attached. • true: The instance RAM role was attached. • false: The instance RAM role failed to be attached.
FailCount	Integer	0	The number of the instances to which the instance RAM role failed to be attached.
RamRoleName	String	RamRoleTest	The name of the instance RAM role.
RequestId	String	D9553E4C-6C3A-4D66-AE79-9835AF705639	The ID of the request.
TotalCount	Integer	1	The total number of instances to which you attempted to attach the instance RAM role.

Examples

Sample requests

```
https://ecs.example.com/?Action=AttachInstanceRamRole
&InstanceIds=["i-bp10ws62o04ubhvi****"]
&RamRoleName=RamRoleTest
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AttachInstanceRamRoleResponse>
      <RequestId>E6352369-5C2B-41CD-AB50-471550C8F674</RequestId>
      <AttachInstanceRamRoleResults>
            <AttachInstanceRamRoleResult>
                  <InstanceId>i-bp10ws62o04ubhvi****</InstanceId>
                  <Code>200</Code>
                  <Message>success</Message>
            </AttachInstanceRamRoleResult>
      </AttachInstanceRamRoleResults>
      <TotalCount>1</TotalCount>
      <FailCount>0</FailCount>
      <RamRoleName>RamRoleTest</RamRoleName>
</AttachInstanceRamRoleResponse>
```

`JSON` format

```
{
    "RequestId": "D9553E4C-6C3A-4D66-AE79-9835AF705639",
    "AttachInstanceRamRoleResults": {
        "AttachInstanceRamRoleResult": [
            {
                "Message": "success",
                "InstanceId": "i-bp10ws62o04ubhvi****",
                "Code": "200"
            }
        ]
    },
    "TotalCount": 1,
    "FailCount": 0,
    "RamRoleName": "RamRoleTest"
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInstanceIds.Malformed	The specified instanceIds are not valid.	The error message returned because the specified InstanceIds parameter is invalid.
404	InvalidInstanceId.NotFound	The specified instanceId does not exist	The error message returned because a specified instance does not exist.
403	InvalidNetworkType.MismatchRamRole	Ram role cannot be applied to instances of Classic network type.	The error message returned because instance RAM roles can be used only for instances in VPCs, not for instances in the classic network.
403	InvalidUser.PassRoleForbidden	The RAM user does not have the privilege to pass a RAM role.	The error message returned because the RAM user is not authorized to pass the RAM role.
404	InvalidRamRole.NotFound	The specified RAMRoleName does not exist.	The error message returned because the specified RamRoleName parameter does not exist.
404	InvalidRamRole.NotEcsRole	The specified ram role is not authorized for ecs, please check your role policy.	The error message returned because the specified RAM role is not authorized to use ECS. Check your role policy.

2.1.2.1.4.8. DetachInstanceRamRole

You can call this operation to detach instance RAM roles from one or more ECS instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DetachInstanceRamRole	The operation that you want to perform. Set the value to DetachInstanceRamRole.
InstanceIds	String	Yes	["i-bp67acfmxazb4p****", "i-bp67acfmxazb4p****", "i-bp67acfmxazb4p****"...]	The IDs of instances. The value can be a JSON array that consists of up to 100 instance IDs. Separate multiple instance IDs with commas (,).
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
RamRoleName	String	No	RamRoleTest	The name of the instance RAM role. You can call the ListRoles operation provided by RAM to query the instance RAM roles that you created.

Response parameters

Parameter	Type	Example	Description
DetachInstanceRamRoleResults	Array of DetachInstanceRamRoleResult		Details about the results of detaching instance RAM roles from the instances.
DetachInstanceRamRoleResult			
Code	String	200	Indicates whether the instance RAM role was detached. If 200 is returned, the instance RAM role was detached. If any other value is returned, the instance RAM role failed to be detached. For more information, see the "Error codes" section.
InstanceId	String	i-bp67acfmxazb4p****	The ID of the instance from which you attempted to detach the instance RAM role.

Parameter	Type	Example	Description
InstanceRamRoleSets	Array of InstanceRamRoleSet		Details about the instance RAM role of the instance.
InstanceRamRoleSet			
InstanceId	String	i-bp67acfmxazb4p****	The ID of the instance.
RamRoleName	String	RamRoleTest	The name of the instance RAM role.
Message	String	Success	The message that indicates whether the instance RAM role was detached. If success is returned, the instance RAM role was detached. If any other value is returned, the instance RAM role failed to be detached. For more information, see the "Error codes" section.
Success	Boolean	true	Indicates whether the instance RAM role was detached.
FailCount	Integer	0	The number of instances from which instance RAM roles failed to be detached.
RamRoleName	String	RamRoleTest	The name of the instance RAM role.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	1	The total number of instances from which you attempted to detach instance RAM roles.

Examples

Sample requests

```
https://ecs.example.com/?Action=DetachInstanceRamRole
&InstanceIds=["i-bp67acfmxazb4p****"]
&RegionId=cn-qingdao-env17-d01
&RamRoleName=RamRoleTest
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachInstanceRamRoleResponse>
      <TotalCount>1</TotalCount>
      <DetachInstanceRamRoleResults>
            <DetachInstanceRamRoleResult>
                  <Message>success</Message>
                  <InstanceId>i-bp16qng6jnvt6g7t****</InstanceId>
                  <Code>200</Code>
                  <InstanceRamRoleSets>
                        <InstanceId>i-bp16qng6jnvt6g7t****</InstanceId>
                        <RamRoleName>RamRoleTest</RamRoleName>
                  </InstanceRamRoleSets>
            </DetachInstanceRamRoleResult>
      </DetachInstanceRamRoleResults>
      <RequestId>14D5B163-CE6C-4489-B979-DBE5D0495A63</RequestId>
      <RamRoleName></RamRoleName>
      <FailCount>0</FailCount>
</DetachInstanceRamRoleResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "DetachInstanceRamRoleResults": {
        "DetachInstanceRamRoleResult": [
            {
                "Message": "success",
                "InstanceId": "i-bp16qng6jnvt6g7t****",
                "Code": "200",
                "InstanceRamRoleSets": {
                    "InstanceId": "i-bp16qng6jnvt6g7t****",
                    "RamRoleName": "RamRoleTest"
                }
            }
        ]
    },
    "RequestId": "14D5B163-CE6C-4489-B979-DBE5D0495A63",
    "RamRoleName": "",
    "FailCount": 0
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	InvalidInstanceIds.Malformed	The specified instanceIds are not valid.	The error message returned because the specified InstanceIds parameter is invalid.
403	InvalidNetworkType.MismatchRamRole	Ram role cannot be applied to instances of Classic network type.	The error message returned because instance RAM roles can be used only for instances in VPCs, not for instances in the classic network.
403	InvalidUser.PassRoleForbidden	The RAM user does not have the privilege to pass a RAM role.	The error message returned because the RAM user is not authorized to pass the RAM role.

2.1.2.1.4.9. DescribeInstanceStatus

You can call this operation to query the status information of multiple instances.

Description

You can also call this operation to query the list of instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceStatus	The operation that you want to perform. Set the value to DescribeInstanceStatus.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
InstanceId.N	RepeatList	No	i-bp1j4i2jdf3owlhe****	The ID of instance N. Valid values of N: 1 to 100. Specify multiple values in the repeated list format.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The zone ID of the instance.
ClusterId	String	No	cls-bp67acfmxazb4p****	The cluster ID of the instance.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.

Response parameters

Parameter	Type	Example	Description
InstanceStatuses	Array of InstanceStatus		The status information of the instances.
InstanceStatus			
InstanceId	String	i-bp1j4i2jdf3owlhe****	The ID of the instance.
Status	String	Running	The status of the instance.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	58	The total number of instances.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceStatus
&RegionId=cn-qingdao-env17-d01
&PageSize=1
&PageNumber=1
&InstanceId.1=i-bp1j4i2jdf3owlhe****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceStatusResponse>
      <PageNumber>1</PageNumber>
      <InstanceStatuses>
            <InstanceStatus>
                  <Status>Running</Status>
                  <InstanceId>i-bp1j4i2jdf3owlhe****</InstanceId>
            </InstanceStatus>
      </InstanceStatuses>
      <TotalCount>58</TotalCount>
      <PageSize>1</PageSize>
      <RequestId>746C3444-9A24-4D7D-B8A8-DCBF7AC8BD66</RequestId>
</DescribeInstanceStatusResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "InstanceStatuses": {
        "InstanceStatus": [
            {
                "Status": "Running",
                "InstanceId": "i-bp1j4i2jdf3owlhe****"
            }
        ]
    },
    "TotalCount": 58,
    "PageSize": 1,
    "RequestId": "746C3444-9A24-4D7D-B8A8-DCBF7AC8BD66"
}
```

2.1.2.1.4.10. DescribeInstances

You can call this operation to query the details of one or more instances.

Description

- You can specify multiple request parameters to be queried. Specified parameters have logical AND relations. Only the specified parameters are included in the filter conditions. However, if InstanceIds is set to an empty JSON array, it is regarded as a valid filter condition and an empty result is returned.
- If you are using a RAM user or RAM role, an empty list is returned when the user or the role does not have the permission to call this operation. You can include the `DryRun` parameter in your request to check whether the empty list is caused by the lack of permissions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstances	The operation that you want to perform. Set the value to DescribeInstances.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	No	v-bp67acfmxazb4p****	The ID of the VPC to which the instance belongs.
VSwitchId	String	No	vsw-bp67acfmxazb4p****	The ID of the vSwitch to which the instance is connected.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The zone ID of the instance.
InstanceNetworkType	String	No	vpc	The network type of the instance. Valid values: • classic: classic network • vpc: VPC
SecurityGroupId	String	No	sg-bp67acfmxazb4p****	The ID of the security group to which the instance belongs.
InstanceIds	String	No	["i-bp67acfmxazb4p****", "i-bp67acfmxazb4p****", ... "i-bp67acfmxazb4p****"]	The IDs of instances. The value can be a JSON array that consists of up to 100 instance IDs. Separate multiple instance IDs with commas (,).
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.

Parameter	Type	Required	Example	Description
InnerIpAddresses	String	No	["10.1.1.1", "10.1.2.1", ... "10.1.10.1"]	The internal IP addresses of classic network-type instances. This parameter takes effect when InstanceNetworkType is set to classic. The value can be a JSON array that consists of up to 100 IP addresses. Separate multiple IP addresses with commas (,).
PrivateIpAddresses	String	No	["172.16.1.1", "172.16.2.1", ... "172.16.10.1"]	The private IP addresses of VPC-type instances. This parameter takes effect when InstanceNetworkType is set to vpc. The value can be a JSON array that consists of up to 100 IP addresses. Separate multiple IP addresses with commas (,).
PublicIpAddresses	String	No	["42.1.1. **", "42.1.2. **", ... "42.1.10. **"]	Note This parameter is not supported.
EipAddresses	String	No	["42.1.1. **", "42.1.2. **", ... "42.1.10. **"]	The elastic IP addresses (EIPs) of instances. This parameter takes effect when InstanceNetworkType is set to vpc. The value can be a JSON array that consists of up to 100 IP addresses. Separate multiple IP addresses with commas (,).
InstanceName	String	No	test-InstanceName	The name of the instance. Fuzzy search with the asterisk (*) wildcard is supported.
ImageId	String	No	m-bp67acfmxazb4p****	The ID of the image.

Parameter	Type	Required	Example	Description
Status	String	No	Running	The status of the instance. Valid values: • Running • Starting • Stopping • Stopped
LockReason	String	No	security	The reason why the instance is locked.
IoOptimized	Boolean	No	true	Specifies whether the instance is I/O optimized.
Tag.N.Key	String	No	TestKey	The key of tag N of the instance. Valid values of N: 1 to 20.
Tag.N.Value	String	No	TestValue	The value of tag N of the instance. Valid values of N: 1 to 20.
InstanceType	String	No	ecs.g5.large	The instance type of the instance.
InstanceTypeFamily	String	No	ecs.g5	The instance family of the instance.
KeyPairName	String	No	test-KeyPairName	The name of the SSH key pair bound to the instance.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the instance belongs.
HpcClusterId	String	No	hpc-bp67acfmxazb4p****	The ID of the HPC cluster to which the instance belongs.
RdmaIpAddresses	String	No	10.10.10.102	The RDMA IP addresses of HPC instances.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the DryRunOperation error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made.
AdditionalAttributes.N	RepeatList	No	META_OPTIONS	The value of attribute N. Valid values of N: 1 to 20.
HttpEndpoint	String	No	enabled	Specifies whether the access channel for instance metadata is enabled. Valid values: • enabled • disabled Default value: enabled.
HttpTokens	String	No	optional	Specifies whether to forcibly use the security-enhanced mode (IMDSv2) to access instance metadata. Valid values: • optional: does not forcibly use the security-enhanced mode (IMDSv2) to access instance metadata. • required: forcibly uses the security-enhanced mode (IMDSv2) to access instance metadata. After you set this parameter to required, you cannot access instance metadata in normal mode. Default value: optional.

Response parameters

Parameter	Type	Example	Description
Instances	Array of Instance		Details about the instances.
Instance			
AutoReleaseTime	String	test	**Note** This parameter is not supported.
ClusterId	String	c-bp67acfmxazb4p****	The ID of the cluster to which the instance belongs. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
Cpu	Integer	8	The number of vCPUs.
CpuOptions	Struct		The CPU options.
CoreCount	Integer	2	The number of CPU cores.
Numa	String	2	The number of threads allocated. Valid value: 2.
ThreadsPerCore	Integer	4	The number of threads per core.
CreationTime	String	2017-12-10T04:04Z	The time when the instance was created.
CreditSpecification	String	Standard	The performance mode of the burstable instance. Valid values: • Standard: standard mode • Unlimited: unlimited mode
DedicatedHostAttribute	Struct		The attributes of the dedicated hosts.
DedicatedHostClusterId	String	dc-bp67acfmxazb4h****	The ID of the dedicated host cluster.

Parameter	Type	Example	Description
DedicatedHostId	String	dh-bp67acfmxazb4p****	The ID of the dedicated host.
DedicatedHostName	String	test-DedicatedHostName	The name of the dedicated host.
DedicatedInstanceAttribute	Struct		The attributes of the instance on a dedicated host.
Affinity	String	default	**Note** This parameter is not supported.
Tenancy	String	default	Indicates whether the instance is hosted on a dedicated host. Valid values: • default: The instance is not hosted on a dedicated host. • host: The instance is hosted on a dedicated host.
DeletionProtection	Boolean	false	**Note** This parameter is not supported.
DeploymentSetGroupNo	Integer	1	The group number of the instance in a deployment set when the deployment set is used to distribute instances across multiple physical machines.
DeploymentSetId	String	ds-bp67acfmxazb4p****	The ID of the deployment set.
Description	String	This is a description example.	The description of the instance.
DeviceAvailable	Boolean	true	Indicates whether data disks can be attached to the instance.
EcsCapacityReservationAttr	Struct		The capacity reservation attributes of the ECS instance.

Parameter	Type	Example	Description
CapacityReservationId	String	cr-bp67acfmxazb4p****	The ID of the capacity reservation.
CapacityReservationPreference	String	cr-bp67acfmxazb4p****	The preference of the capacity reservation.
EipAddress	Struct		Details about the EIP associated with the instance.
AllocationId	String	i-bp67acfmxazb4p****	The ID of the instance with which the EIP is associated.
Bandwidth	Integer	5	The maximum public bandwidth of the EIP. Unit: Mbit/s.
InternetChargeType	String	test	**Note** This parameter is not supported.
IpAddress	String	42.112.17.**	The EIP.
IsSupportUnassociate	Boolean	true	Indicates whether the EIP can be disassociated.
ExpiredTime	String	2017-12-10T04:04Z	**Note** This parameter is not supported.
GPUAmount	Integer	4	The number of GPUs for the instance type.
GPUSpec	String	NVIDIA V100	The category of GPUs for the instance type.
HostName	String	test-HostName	The hostname of the instance.
HpcClusterId	String	hpc-bp67acfmxazb4p****	The ID of the HPC cluster to which the instance belongs.

Parameter	Type	Example	Description
ImageId	String	m-bp67acfmxazb4p****	The ID of the image that the instance is running.
InnerIpAddress	List	10.170.**. ***	The internal IP address of the instance.
InstanceChargeType	String	test	**Note** This parameter is not supported.
InstanceId	String	i-bp67acfmxazb4p****	The ID of the instance.
InstanceName	String	test-InstanceName	The name of the instance.
InstanceNetworkType	String	vpc	The network type of the instance. Valid values: • classic: classic network • vpc: VPC
InstanceType	String	ecs.g5.large	The instance type of the instance.
InstanceTypeFamily	String	ecs.g5	The instance family of the instance.
InternetChargeType	String	test	**Note** This parameter is not supported.
InternetMaxBandwidthIn	Integer	50	The maximum inbound public bandwidth. Unit: Mbit/s.
InternetMaxBandwidthOut	Integer	5	The maximum outbound public bandwidth. Unit: Mbit/s.
IoOptimized	Boolean	true	Indicates whether the instance is I/O optimized.
KeyPairName	String	test-KeyPairName	The name of the key pair.

Parameter	Type	Example	Description
LocalStorageAmount	Integer	2	The number of local disks attached to the instance.
LocalStorageCapacity	Long	1000	The capacity of local disks attached to the instance.
Memory	Integer	1024	The memory size of the instance. Unit: MiB.
MetadataOptions	Struct		The metadata options.
HttpEndpoint	String	enabled	Indicates whether the access channel for instance metadata was enabled. Valid values: • enabled • disabled
HttpPutResponseHopLimit	Integer	0	**Note** This parameter is not supported.
HttpTokens	String	optional	Indicates whether to forcibly use the security-enhanced mode (IMDSv2) to access instance metadata. Valid values: • optional: does not forcibly use the security-enhanced mode (IMDSv2) to access instance metadata. • required: forcibly uses the security-enhanced mode (IMDSv2) to access instance metadata.
NetworkInterfaces	Array of NetworkInterface		Details about the ENIs bound to the instance.
NetworkInterface			
MacAddress	String	00:16:3e:32:b4:**	The MAC address of the ENI.

Parameter	Type	Example	Description
NetworkInterfaceId	String	eni-2zeh9atclduxvf1z****	The ID of the ENI.
PrimaryIpAddress	String	172.17.**. ***	The private IP address of the primary ENI.
OSName	String	CentOS 7.4 64-bit	The name of the operating system for the instance.
OSNameEn	String	CentOS 7.4 64 bit	The English name of the operating system for the instance.
OSType	String	linux	The operating system type of the instance. Valid values: • windows • linux
OperationLocks	Array of LockReason		Details about the reasons why the instance was locked.
LockReason			
LockMsg	String	The specified instance is locked due to financial reason.	The message returned when the instanced was locked.
LockReason	String	test	Note This parameter is not supported.
PublicIpAddress	List	121.40.61.***	Note This parameter is not supported.
RdmaIpAddress	List	10.10.10.102	The RDMA IP address of the HPC instance.
Recyclable	Boolean	false	Indicates whether the instance can be recycled.
RegionId	String	cn-qingdao-env17-d01	The region ID of the instance.

Parameter	Type	Example	Description
ResourceGroupId	String	rg-bp67acfmxazb4p****	The ID of the resource group to which the instance belongs.
SaleCycle	String	month	Note This parameter is not supported.
SecurityGroupIds	List	sg-bp67acfmxazb4p****	The IDs of security groups to which the instance belongs.
SerialNumber	String	51d1353b-22bf-4567-a176-8b3e12e4****	The serial number of the instance.
SpotPriceLimit	Float	0.00	Note This parameter is not supported.
SpotStrategy	String	test	Note This parameter is not supported.
StartTime	String	test	Note This parameter is not supported.
Status	String	Running	The status of the instance.
StoppedMode	String	test	Note This parameter is not supported.
Tags	Array of Tag		The tags of the instance.
Tag			
TagKey	String	TestKey	The tag key of the instance.

Parameter	Type	Example	Description
TagValue	String	TestValue	The tag value of the instance.
VlanId	String	10	The VLAN ID of the instance. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
VpcAttributes	Struct		The VPC attributes of the instance.
NatIpAddress	String	172.17.**. ***	The NAT IP address of the instance. It is used by ECS instances in different VPCs for communication.
PrivateIpAddress	List	172.17.**. ***	The private IP address of the instance.
VSwitchId	String	vsw-2zeh0r1pabwtg6wcs****	The ID of the vSwitch to which the instance is connected.
VpcId	String	vpc-2zeuphj08tt7q3brd*****	The ID of the VPC to which the instance belongs.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The zone ID of the instance.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	58	The total number of instances returned.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstances
&RegionId=cn-qingdao-env17-d01
&PageSize=1
PageNumber=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstancesResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>58</TotalCount>
      <PageSize>1</PageSize>
      <RequestId>97935DF1-0289-4AA2-9DD1-72377838B16B</RequestId>
      <Instances>
            <Instance>
                  <ImageId>centos_7_06_64_20G_alibase_20190711.vhd</ImageId>
                  <VlanId></VlanId>
                  <EipAddress>
                        <IpAddress></IpAddress>
                        <AllocationId></AllocationId>
                  </EipAddress>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
                  <IoOptimized>true</IoOptimized>
                  <SerialNumber>51d1353b-22bf-4567-a176-8b3e12e43***</SerialNumber>
                  <Cpu>2</Cpu>
                  <Memory>8192</Memory>
                  <DeviceAvailable>true</DeviceAvailable>
                  <SecurityGroupIds>
                        <SecurityGroupId>sg-bp17zljqpohu6j2i****</SecurityGroupId>
                  </SecurityGroupIds>
                  <SaleCycle></SaleCycle>
                  <AutoReleaseTime></AutoReleaseTime>
                  <ResourceGroupId></ResourceGroupId>
                  <OSType>linux</OSType>
                  <OSName>CentOS 7.6  64-bit</OSName>
                  <InstanceNetworkType>classic</InstanceNetworkType>
                  <HostName>iZbp1j4i2jdf3owlheb****</HostName>
                  <CreationTime>2019-11-11T08:35Z</CreationTime>
                  <Tags>
                        <Tag>
                              <TagValue>asg-bp1d8uuut40f4qc4****</TagValue>
                              <TagKey>acs:autoscaling:scalingGroupId</TagKey>
                        </Tag>
                        <Tag>
                              <TagValue>ESS</TagValue>
                              <TagKey>ESS</TagKey>
                        </Tag>
                  </Tags>
                  <EcsCapacityReservationAttr>
                        <CapacityReservationPreference>none</CapacityReservationPreference>
                        <CapacityReservationId></CapacityReservationId>
                  </EcsCapacityReservationAttr>
```

```
            <RegionId>cn-qingdao-env17-d01</RegionId>
            <DeletionProtection>false</DeletionProtection>
            <OperationLocks>
        </OperationLocks>
            <ExpiredTime>2099-12-31T15:59Z</ExpiredTime>
            <CpuOptions>
                  <Numa></Numa>
                  <ThreadsPerCore>2</ThreadsPerCore>
                  <CoreCount>1</CoreCount>
            </CpuOptions>
            <InnerIpAddress>
                  <IpAddress>10.80.61.42</IpAddress>
            </InnerIpAddress>
            <InstanceTypeFamily>ecs.mn4</InstanceTypeFamily>
            <InstanceId>i-bp1j4i2jdf3owlhe****</InstanceId>
            <InternetMaxBandwidthIn>50</InternetMaxBandwidthIn>
            <CreditSpecification></CreditSpecification>
            <InternetChargeType>PayByTraffic</InternetChargeType>
            <SpotStrategy>NoSpot</SpotStrategy>
            <StoppedMode>Not-applicable</StoppedMode>
            <InternetMaxBandwidthOut>1</InternetMaxBandwidthOut>
            <VpcAttributes>
                  <NatIpAddress></NatIpAddress>
                  <PrivateIpAddress>
              </PrivateIpAddress>
                  <VSwitchId></VSwitchId>
                  <VpcId></VpcId>
            </VpcAttributes>
            <SpotPriceLimit>0</SpotPriceLimit>
            <StartTime>2019-11-11T08:35Z</StartTime>
            <InstanceName>ECS-asg-MyFirstScalingGroup</InstanceName>
            <Description>ECS</Description>
            <OSNameEn>CentOS  7.6 64 bit</OSNameEn>
            <PublicIpAddress>
                  <IpAddress>121.40.77.XXX</IpAddress>
            </PublicIpAddress>
            <InstanceType>ecs.mn4.large</InstanceType>
            <Status>Running</Status>
            <MetadataOptions>
                  <HttpTokens></HttpTokens>
                  <HttpEndpoint></HttpEndpoint>
            </MetadataOptions>
            <Recyclable>false</Recyclable>
            <ClusterId></ClusterId>
            <GPUSpec></GPUSpec>
            <InstanceChargeType>PostPaid</InstanceChargeType>
            <GPUAmount>0</GPUAmount>
            <DedicatedHostAttribute>
                  <DedicatedHostId></DedicatedHostId>
                  <DedicatedHostName></DedicatedHostName>
            </DedicatedHostAttribute>
            <DedicatedInstanceAttribute>
                  <Affinity></Affinity>
                  <Tenancy></Tenancy>
```

```
                </DedicatedInstanceAttribute>
                <DeploymentSetId></DeploymentSetId>
            </Instance>
        </Instances>
</DescribeInstancesResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 58,
    "PageSize": 1,
    "RequestId": "97935DF1-0289-4AA2-9DD1-72377838B16B",
    "Instances": {
        "Instance": [
            {
                "ImageId": "centos_7_06_64_20G_alibase_20190711.vhd",
                "VlanId": "",
                "EipAddress": {
                    "IpAddress": "",
                    "AllocationId": "",
                },
                "ZoneId": "cn-qingdao-env17-amtest11001-a",
                "IoOptimized": true,
                "SerialNumber": "51d1353b-22bf-4567-a176-8b3e12e43***",
                "Cpu": 2,
                "Memory": 8192,
                "DeviceAvailable": true,
                "SecurityGroupIds": {
                    "SecurityGroupId": [
                        "sg-bp17zljqpohu6j2i****"
                    ]
                },
                "SaleCycle": "",
                "AutoReleaseTime": "",
                "ResourceGroupId": "",
                "OSType": "linux",
                "OSName": "CentOS 7.6 64-bit",
                "InstanceNetworkType": "classic",
                "HostName": "iZbp1j4i2jdf3owlheb****",
                "CreationTime": "2019-11-11T08:35Z",
                "Tags": {
                    "Tag": [
                        {
                            "TagValue": "asg-bp1d8uuut40f4qc4****",
                            "TagKey": "acs:autoscaling:scalingGroupId"
                        },
                        {
                            "TagValue": "ESS",
                            "TagKey": "ESS"
                        }
                    ]
                },
                "EcsCapacityReservationAttr": {
```

```
        "EcsCapacityReservationAttr": {
            "CapacityReservationPreference": "none",
            "CapacityReservationId": ""
        },
        "RegionId": "cn-qingdao-env17-d01",
        "DeletionProtection": false,
        "OperationLocks": {
            "LockReason": []
        },
        "ExpiredTime": "2099-12-31T15:59Z",
        "CpuOptions": {
            "Numa": "",
            "ThreadsPerCore": 2,
            "CoreCount": 1
        },
        "InnerIpAddress": {
            "IpAddress": [
                "10.80.61.42"
            ]
        },
        "InstanceTypeFamily": "ecs.mn4",
        "InstanceId": "i-bp1j4i2jdf3owlhe****",
        "InternetMaxBandwidthIn": 50,
        "CreditSpecification": "",
        "InternetChargeType": "PayByTraffic",
        "SpotStrategy": "NoSpot",
        "StoppedMode": "Not-applicable",
        "InternetMaxBandwidthOut": 1,
        "VpcAttributes": {
            "NatIpAddress": "",
            "PrivateIpAddress": {
                "IpAddress": []
            },
            "VSwitchId": "",
            "VpcId": ""
        },
        "SpotPriceLimit": 0,
        "StartTime": "2019-11-11T08:35Z",
        "InstanceName": "ECS-asg-MyFirstScalingGroup",
        "Description": "ECS",
        "OSNameEn": "CentOS  7.6 64 bit",
        "PublicIpAddress": {
            "IpAddress": [
                "121.40.77.XXX"
            ]
        },
        "InstanceType": "ecs.mn4.large",
        "Status": "Running",
        "MetadataOptions": {
            "HttpTokens": "",
            "HttpEndpoint": ""
        },
        "Recyclable": false,
        "ClusterId": "",
        "GPUSpec": "",
```

```
                "InstanceChargeType": "PostPaid",
                "GPUAmount": 0,
                "DedicatedHostAttribute": {
                    "DedicatedHostId": "",
                    "DedicatedHostName": ""
                },
                "DedicatedInstanceAttribute": {
                    "Affinity": "",
                    "Tenancy": ""
                },
                "DeploymentSetId": ""
            }
        ]
    }
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceChargeType.NotFound	The InstanceChargeType does not exist in our records	The error message returned because the specified InstanceChargeType parameter does not exist.
404	InvalidInternetChargeType.ValueNotSupported	The specified InternetChargeType is not valid	The error message returned because the specified InternetChargeType parameter is invalid.
404	InvalidLockReason.NotFound	The specified LockReason is not found	The error message returned because the specified LockReason parameter does not exist.
404	InvalidFilterKey.NotFound		The error message returned because the specified start time or end time is invalid.
404	InvalidNetworkType.NotFound	The specified InstanceNetworkType is not found	The error message returned because the specified InstanceNetworkType parameter does not exist.
404	InvalidStatus.NotFound	The specified Status is not found	The error message returned because the specified resource status does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags has exceeded the upper limit.
400	InvalidHpcClusterId.NotFound	The specified HpcClusterId is not found.	The error message returned because the specified HpcClusterId parameter does not exist.
400	InvalidHpcClusterId.Creating	The specified HpcClusterId is creating.	The error message returned because the specified HPC cluster is being created.

2.1.2.1.4.11. DescribeUserData

You can call this operation to query the user data of an ECS instance.

Description

- The returned user data is encoded in Base64.
- If the instance does not have user data configured, an empty result is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeUserData	The operation that you want to perform. Set the value to DescribeUserdata.
InstanceId	String	Yes	i-bp1a0cmfrfi71qlh****	The ID of the instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
InstanceId	String	i-bp1a0cmfrfi71qlh****	The ID of the instance.
RegionId	String	cn-qingdao-env17-d01	The region ID of the instance.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
UserData	String	ZWNobyBoZWxsbyBlY3Mh	The user data of the instance.

Examples

Sample requests

```
https://ecs.example.com/?Action= DescribeUserdata
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-bp1a0cmfrfi71qlh****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeUserdataResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
      <UserData>ZWNobyBoZWxsbyBlY3Mh</UserData>
      <InstanceId>i-bp1a0cmfrfi71qlh****</InstanceId>
      <RegionId>cn-qingdao-env17-d01</RegionId>
</DescribeUserdataResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E",
    " UserData ": "ZWNobyBoZWxsbyBlY3Mh",
    " InstanceId ": "i-bp1a0cmfrfi71qlh****",
    " RegionId": "cn-qingdao-env17-d01"
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.

2.1.2.1.4.12. DescribeInstanceRamRole

You can call this operation to query the instance RAM roles attached to one or more ECS instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceRamRole	The operation that you want to perform. Set the value to DescribeInstanceRamRole.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance RAM role. You can call the DescribeRegions operation to query the most recent region list.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.
InstanceIds	String	No	["i-bp67acfmxazb4p****", "i-bp67acfmxazb4p****", "bp67acfmxazb4p****"...]	The IDs of instances. A maximum of 100 instance IDs can be entered at a time. You must specify at least one of the `InstanceIds` and `RamRoleName` parameters.

Parameter	Type	Required	Example	Description
RamRoleName	String	No	EcsServiceRole-EcsDocGuideTest	The name of the instance RAM role. This parameter can be used to query all the ECS instances to which the instance RAM role is attached. You can call the ListRoles operation provided by RAM to query the instance RAM roles that you created. You must specify at least one of the `InstanceIds` and `RamRoleName` parameters.

Response parameters

Parameter	Type	Example	Description
InstanceRamRoleSets	Array of InstanceRamRoleSet		Details about the instance RAM roles.
InstanceRamRoleSet			
InstanceId	String	i-bp67acfmxazb4p****	The ID of the instance.
RamRoleName	String	EcsServiceRole-EcsDocGuideTest	The name of the instance RAM role.
RegionId	String	cn-qingdao-env17-d01	The region ID of the instance RAM role.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	1	The total number of instance RAM roles returned.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceRamRole
&RegionId=cn-qingdao-env17-d01
&InstanceIds=["i-bp67acfmxazb4p****"]
&PageNumber=1
&PageSize=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceRamRoleResponse>
      <RequestId>8F4CAE3F-7892-4662-83A5-2C2FFD639553</RequestId>
      <InstanceRamRoleSets>
            <InstanceRamRoleSet>
                  <InstanceId>i-bp67acfmxazb4p****</InstanceId>
                  <RamRoleName>EcsServiceRole-EcsDocGuideTest</RamRoleName>
            </InstanceRamRoleSet>
      </InstanceRamRoleSets>
      <TotalCount>1</TotalCount>
      <PageNumber>1</PageNumber>
      <PageSize>1</PageSize>
</DescribeInstanceRamRoleResponse>
```

`JSON` format

```
{
    "RequestId": "8F4CAE3F-7892-4662-83A5-2C2FFD639553",
    "InstanceRamRoleSets": {
        "InstanceRamRoleSet": [
            {
                "InstanceId": "i-bp67acfmxazb4p****",
                "RamRoleName": "EcsServiceRole-EcsDocGuideTest"
            }
        ]
    },
    "TotalCount": 1,
    "PageNumber": 1,
    "PageSize": 1
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInstanceIds.Malformed	The specified instanceIds are not valid.	The error message returned because the specified InstanceIds parameter is invalid.
404	InvalidInstanceId.NotFound	The specified instanceId does not exist	The error message returned because a specified instance does not exist.
403	InvalidNetworkType.MismatchRamRole	Ram role cannot be applied to instances of Classic network type.	The error message returned because instance RAM roles can be used only for instances in VPCs, not for instances in the classic network.

HTTP status code	Error code	Error message	Description
403	InvalidParameter.AllEmpty	%s	The error message returned because no parameters are specified. Specify required parameters.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.4.13. DescribeInstanceTypeFamilies

You can call this operation to query the instance families provided by ECS.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceTypeFamilies	The operation that you want to perform. Set the value to DescribeInstanceTypeFamilies.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
Generation	String	No	ecs-3	The generation of the instance family. Valid values: • ecs-1: Generation I, which consists of the earliest and cost-effective instance families • ecs-2: Generation II, which provides upgraded software and hardware and higher performance than Generation I • ecs-3: Generation III, which consists of high-performance instance families and is suitable for different business scenarios • ecs-4: Generation IV, which consists of the low-latency instance families that can meet a wide variety of business requirements • ecs-5: Generation V, which includes Bare Metal Instance families and enterprise-level instance families such as g6, c6, and r6, and delivers quicker response and higher performance

Response parameters

Parameter	Type	Example	Description
InstanceTypeFamilies	Array of InstanceTypeFamily		Details about the instance families.
InstanceTypeFamily			
Generation	String	ecs-5	The generation of the instance family.
InstanceTypeFamilyId	String	ecs.g6	The ID of the instance family.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceTypeFamilies
&RegionId=cn-qingdao-env17-d01
&Generation=ecs-5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceTypeFamiliesResponse>
      <InstanceTypeFamilies>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.g6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.ebmg6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.ebmg6e</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.g6e</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.c6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.r6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.t6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.hfc6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.hfg6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.hfr6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.ebmc6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
            <InstanceTypeFamily>
                  <InstanceTypeFamilyId>ecs.ebmr6</InstanceTypeFamilyId>
                  <Generation>ecs-5</Generation>
            </InstanceTypeFamily>
      </InstanceTypeFamilies>
      <RequestId>A66D039A-EC35-4130-B0D1-E9873C0742D2</RequestId>
</DescribeInstanceTypeFamiliesResponse>
```

`JSON` format


```
{
 "InstanceTypeFamilies": {
  "InstanceTypeFamily": [
   {
    "InstanceTypeFamilyId": "ecs.g6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.ebmg6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.ebmg6e",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.g6e",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.c6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.r6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.t6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.hfc6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.hfg6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.hfr6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.ebmc6",
    "Generation": "ecs-5"
   },
   {
    "InstanceTypeFamilyId": "ecs.ebmr6",
    "Generation": "ecs-5"
   }
  ]
```

```
  },
  "RequestId": "A66D039A-EC35-4130-B0D1-E9873C0742D2"
}
```

2.1.2.1.4.14. DescribeInstanceTypes

You can call this operation to query the instance types provided by ECS.

Description

The DescribeInstanceTypes operation is used to query only the specifications and performance data of instance types. To query instance types that are available in a region, call the DescribeAvailableResource operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceTypes	The operation that you want to perform. Set the value to DescribeInstanceTypes.
InstanceTypeFamily	String	No	ecs.g6	The instance family to which the instance type belongs. For valid values, see DescribeInstanceTypeFamilies. For more information, see Instance types in ECS Product Introduction.

Response parameters

Parameter	Type	Example	Description
InstanceTypes	Array of InstanceType		Details about the instance types.
InstanceType			
BaselineCredit	Integer	4	The baseline vCPU computing performance (overall computing performance of all vCPUs) of the t5 burstable instance family.
CpuCoreCount	Integer	8	The number of vCPUs.
EniIpv6AddressQuantity	Integer	1	The maximum number of IPv6 addresses that can be assigned to a single elastic network interface (ENI).

Parameter	Type	Example	Description
EniPrivateIpAddressQuantity	Integer	6	The maximum number of private IP addresses that can be assigned to a single ENI.
EniQuantity	Integer	2	The maximum number of ENIs that can be bound to an instance.
EniTotalQuantity	Integer	0	**Note** This parameter is not supported.
EniTrunkSupported	Boolean	false	**Note** This parameter is not supported.
GPUAmount	Integer	2	The number of GPUs.
GPUSpec	String	NVIDIA V100	The GPU type.
InitialCredit	Integer	120	The initial vCPU credits of the t5 burstable instance family.
InstanceBandwidthRx	Integer	1024000	The maximum inbound internal bandwidth. Unit: Kbit/s.
InstanceBandwidthTx	Integer	1024000	The maximum outbound internal bandwidth. Unit: Kbit/s.
InstanceFamilyLevel	String	EnterpriseLevel	The level of the instance family. Valid values: • EntryLevel • EnterpriseLevel • CreditEntryLevel
InstancePpsRx	Long	300000	The inbound packet forwarding rate over the internal network. Unit: PPS.

Parameter	Type	Example	Description
InstancePpsTx	Long	300000	The outbound packet forwarding rate over the internal network. Unit: PPS.
InstanceTypeFamily	String	ecs.g5	The instance family.
InstanceTypeId	String	ecs.g5.large	The ID of the instance type.
LocalStorageAmount	Integer	1	The number of local disks attached per instance.
LocalStorageCapacity	Long	5000	The capacity of each local disk attached per instance. Unit: GiB.
LocalStorageCategory	String	local_ssd_pro	The category of local disks. Valid values: • local_hdd_pro: local SATA HDDs attached to instances of the d1 instance family • local_ssd_pro: local NVMe SSDs attached to instances of the i2, ga1, and gn5 instance families
MemorySize	Float	8.0	The memory size. Unit: GiB.
TotalEniQueueQuantity	Integer	128	The maximum number of NIC queues that the instance type can support. **Note** The queues of the primary NIC are excluded.
RequestId	String	00827261-20B7-4562-83F2-4DF39876A45A	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceTypes
&InstanceTypeFamily=ecs.g6
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceTypesResponse>
      <RequestId>00827261-20B7-4562-83F2-4DF39876A45A</RequestId>
      <InstanceTypes>
            <InstanceType>
                  <MemorySize>384</MemorySize>
                  <InstancePpsTx>6000000</InstancePpsTx>
                  <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
                  <CpuCoreCount>104</CpuCoreCount>
                  <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
                  <InstancePpsRx>6000000</InstancePpsRx>
                  <EniQuantity>15</EniQuantity>
                  <InstanceBandwidthRx>25600000</InstanceBandwidthRx>
                  <GPUAmount>0</GPUAmount>
                  <InstanceBandwidthTx>25600000</InstanceBandwidthTx>
                  <LocalStorageCategory></LocalStorageCategory>
                  <GPUSpec></GPUSpec>
                  <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
                  <InstanceTypeId>ecs.g6.26xlarge</InstanceTypeId>
                  <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
            </InstanceType>
            <InstanceType>
                  <MemorySize>192</MemorySize>
                  <InstancePpsTx>3000000</InstancePpsTx>
                  <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
                  <CpuCoreCount>52</CpuCoreCount>
                  <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
                  <InstancePpsRx>3000000</InstancePpsRx>
                  <EniQuantity>7</EniQuantity>
                  <InstanceBandwidthRx>12800000</InstanceBandwidthRx>
                  <GPUAmount>0</GPUAmount>
                  <InstanceBandwidthTx>12800000</InstanceBandwidthTx>
                  <LocalStorageCategory></LocalStorageCategory>
                  <GPUSpec></GPUSpec>
                  <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
                  <InstanceTypeId>ecs.g6.13xlarge</InstanceTypeId>
                  <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
            </InstanceType>
            <InstanceType>
                  <MemorySize>256</MemorySize>
                  <InstancePpsTx>4000000</InstancePpsTx>
                  <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
                  <CpuCoreCount>64</CpuCoreCount>
                  <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
                  <InstancePpsRx>4000000</InstancePpsRx>
                  <EniQuantity>8</EniQuantity>
                  <InstanceBandwidthRx>20480000</InstanceBandwidthRx>
                  <GPUAmount>0</GPUAmount>
                  <InstanceBandwidthTx>20480000</InstanceBandwidthTx>
                  <LocalStorageCategory></LocalStorageCategory>
                  <GPUSpec></GPUSpec>
                  <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
                  <InstanceTypeId>ecs.g6.16xlarge</InstanceTypeId>
                  <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
            </InstanceType>
```

```
        <InstanceType>
              <MemorySize>32</MemorySize>
              <InstancePpsTx>800000</InstancePpsTx>
              <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
              <CpuCoreCount>8</CpuCoreCount>
              <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
              <InstancePpsRx>800000</InstancePpsRx>
              <EniQuantity>4</EniQuantity>
              <InstanceBandwidthRx>2560000</InstanceBandwidthRx>
              <GPUAmount>0</GPUAmount>
              <InstanceBandwidthTx>2560000</InstanceBandwidthTx>
              <LocalStorageCategory></LocalStorageCategory>
              <GPUSpec></GPUSpec>
              <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
              <InstanceTypeId>ecs.g6.2xlarge</InstanceTypeId>
              <EniPrivateIpAddressQuantity>10</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
              <MemorySize>8</MemorySize>
              <InstancePpsTx>300000</InstancePpsTx>
              <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
              <CpuCoreCount>2</CpuCoreCount>
              <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
              <InstancePpsRx>300000</InstancePpsRx>
              <EniQuantity>2</EniQuantity>
              <InstanceBandwidthRx>1024000</InstanceBandwidthRx>
              <GPUAmount>0</GPUAmount>
              <InstanceBandwidthTx>1024000</InstanceBandwidthTx>
              <LocalStorageCategory></LocalStorageCategory>
              <GPUSpec></GPUSpec>
              <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
              <InstanceTypeId>ecs.g6.large</InstanceTypeId>
              <EniPrivateIpAddressQuantity>6</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
              <MemorySize>16</MemorySize>
              <InstancePpsTx>500000</InstancePpsTx>
              <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
              <CpuCoreCount>4</CpuCoreCount>
              <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
              <InstancePpsRx>500000</InstancePpsRx>
              <EniQuantity>3</EniQuantity>
              <InstanceBandwidthRx>1536000</InstanceBandwidthRx>
              <GPUAmount>0</GPUAmount>
              <InstanceBandwidthTx>1536000</InstanceBandwidthTx>
              <LocalStorageCategory></LocalStorageCategory>
              <GPUSpec></GPUSpec>
              <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
              <InstanceTypeId>ecs.g6.xlarge</InstanceTypeId>
              <EniPrivateIpAddressQuantity>10</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
              <MemorySize>48</MemorySize>
              <InstancePpsTx>900000</InstancePpsTx>
```

```
            <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
            <CpuCoreCount>12</CpuCoreCount>
            <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
            <InstancePpsRx>900000</InstancePpsRx>
            <EniQuantity>6</EniQuantity>
            <InstanceBandwidthRx>4096000</InstanceBandwidthRx>
            <GPUAmount>0</GPUAmount>
            <InstanceBandwidthTx>4096000</InstanceBandwidthTx>
            <LocalStorageCategory></LocalStorageCategory>
            <GPUSpec></GPUSpec>
            <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
            <InstanceTypeId>ecs.g6.3xlarge</InstanceTypeId>
            <EniPrivateIpAddressQuantity>10</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
            <MemorySize>64</MemorySize>
            <InstancePpsTx>1000000</InstancePpsTx>
            <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
            <CpuCoreCount>16</CpuCoreCount>
            <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
            <InstancePpsRx>1000000</InstancePpsRx>
            <EniQuantity>8</EniQuantity>
            <InstanceBandwidthRx>5120000</InstanceBandwidthRx>
            <GPUAmount>0</GPUAmount>
            <InstanceBandwidthTx>5120000</InstanceBandwidthTx>
            <LocalStorageCategory></LocalStorageCategory>
            <GPUSpec></GPUSpec>
            <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
            <InstanceTypeId>ecs.g6.4xlarge</InstanceTypeId>
            <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
            <MemorySize>96</MemorySize>
            <InstancePpsTx>1500000</InstancePpsTx>
            <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
            <CpuCoreCount>24</CpuCoreCount>
            <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
            <InstancePpsRx>1500000</InstancePpsRx>
            <EniQuantity>8</EniQuantity>
            <InstanceBandwidthRx>7680000</InstanceBandwidthRx>
            <GPUAmount>0</GPUAmount>
            <InstanceBandwidthTx>7680000</InstanceBandwidthTx>
            <LocalStorageCategory></LocalStorageCategory>
            <GPUSpec></GPUSpec>
            <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
            <InstanceTypeId>ecs.g6.6xlarge</InstanceTypeId>
            <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
        </InstanceType>
        <InstanceType>
            <MemorySize>128</MemorySize>
            <InstancePpsTx>2000000</InstancePpsTx>
            <EniIpv6AddressQuantity>1</EniIpv6AddressQuantity>
            <CpuCoreCount>32</CpuCoreCount>
            <InstanceTypeFamily>ecs.g6</InstanceTypeFamily>
```

```
                    <InstancePpsRx>2000000</InstancePpsRx>
                    <EniQuantity>8</EniQuantity>
                    <InstanceBandwidthRx>10240000</InstanceBandwidthRx>
                    <GPUAmount>0</GPUAmount>
                    <InstanceBandwidthTx>10240000</InstanceBandwidthTx>
                    <LocalStorageCategory></LocalStorageCategory>
                    <GPUSpec></GPUSpec>
                    <InstanceFamilyLevel>EnterpriseLevel</InstanceFamilyLevel>
                    <InstanceTypeId>ecs.g6.8xlarge</InstanceTypeId>
                    <EniPrivateIpAddressQuantity>20</EniPrivateIpAddressQuantity>
                </InstanceType>
            </InstanceTypes>
</DescribeInstanceTypesResponse>
```

`JSON` format

```
{
 "RequestId": "00827261-20B7-4562-83F2-4DF39876A45A",
 "InstanceTypes": {
  "InstanceType": [
   {
    "MemorySize": 384,
    "InstancePpsTx": 6000000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 104,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 6000000,
    "EniQuantity": 15,
    "InstanceBandwidthRx": 25600000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 25600000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.26xlarge",
    "EniPrivateIpAddressQuantity": 20
   },
   {
    "MemorySize": 192,
    "InstancePpsTx": 3000000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 52,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 3000000,
    "EniQuantity": 7,
    "InstanceBandwidthRx": 12800000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 12800000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.13xlarge",
    "EniPrivateIpAddressQuantity": 20
   },
```

```
{
 "MemorySize": 256,
 "InstancePpsTx": 4000000,
 "EniIpv6AddressQuantity": 1,
 "CpuCoreCount": 64,
 "InstanceTypeFamily": "ecs.g6",
 "InstancePpsRx": 4000000,
 "EniQuantity": 8,
 "InstanceBandwidthRx": 20480000,
 "GPUAmount": 0,
 "InstanceBandwidthTx": 20480000,
 "LocalStorageCategory": "",
 "GPUSpec": "",
 "InstanceFamilyLevel": "EnterpriseLevel",
 "InstanceTypeId": "ecs.g6.16xlarge",
 "EniPrivateIpAddressQuantity": 20
},
{
 "MemorySize": 32,
 "InstancePpsTx": 800000,
 "EniIpv6AddressQuantity": 1,
 "CpuCoreCount": 8,
 "InstanceTypeFamily": "ecs.g6",
 "InstancePpsRx": 800000,
 "EniQuantity": 4,
 "InstanceBandwidthRx": 2560000,
 "GPUAmount": 0,
 "InstanceBandwidthTx": 2560000,
 "LocalStorageCategory": "",
 "GPUSpec": "",
 "InstanceFamilyLevel": "EnterpriseLevel",
 "InstanceTypeId": "ecs.g6.2xlarge",
 "EniPrivateIpAddressQuantity": 10
},
{
 "MemorySize": 8,
 "InstancePpsTx": 300000,
 "EniIpv6AddressQuantity": 1,
 "CpuCoreCount": 2,
 "InstanceTypeFamily": "ecs.g6",
 "InstancePpsRx": 300000,
 "EniQuantity": 2,
 "InstanceBandwidthRx": 1024000,
 "GPUAmount": 0,
 "InstanceBandwidthTx": 1024000,
 "LocalStorageCategory": "",
 "GPUSpec": "",
 "InstanceFamilyLevel": "EnterpriseLevel",
 "InstanceTypeId": "ecs.g6.large",
 "EniPrivateIpAddressQuantity": 6
},
{
 "MemorySize": 16,
 "InstancePpsTx": 500000,
```

```
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 4,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 500000,
    "EniQuantity": 3,
    "InstanceBandwidthRx": 1536000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 1536000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.xlarge",
    "EniPrivateIpAddressQuantity": 10
  },
  {
    "MemorySize": 48,
    "InstancePpsTx": 900000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 12,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 900000,
    "EniQuantity": 6,
    "InstanceBandwidthRx": 4096000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 4096000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.3xlarge",
    "EniPrivateIpAddressQuantity": 10
  },
  {
    "MemorySize": 64,
    "InstancePpsTx": 1000000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 16,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 1000000,
    "EniQuantity": 8,
    "InstanceBandwidthRx": 5120000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 5120000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.4xlarge",
    "EniPrivateIpAddressQuantity": 20
  },
  {
    "MemorySize": 96,
    "InstancePpsTx": 1500000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 24,
    "InstanceTypeFamily": "ecs.g6",
```

```
    "InstancePpsRx": 1500000,
    "EniQuantity": 8,
    "InstanceBandwidthRx": 7680000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 7680000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.6xlarge",
    "EniPrivateIpAddressQuantity": 20
   },
   {
    "MemorySize": 128,
    "InstancePpsTx": 2000000,
    "EniIpv6AddressQuantity": 1,
    "CpuCoreCount": 32,
    "InstanceTypeFamily": "ecs.g6",
    "InstancePpsRx": 2000000,
    "EniQuantity": 8,
    "InstanceBandwidthRx": 10240000,
    "GPUAmount": 0,
    "InstanceBandwidthTx": 10240000,
    "LocalStorageCategory": "",
    "GPUSpec": "",
    "InstanceFamilyLevel": "EnterpriseLevel",
    "InstanceTypeId": "ecs.g6.8xlarge",
    "EniPrivateIpAddressQuantity": 20
   }
  ]
 }
}
```


2.1.2.1.4.15. ModifyInstanceAttribute

You can call this operation to modify some attributes of an ECS instance, such as the password, name, description, hostname, security group, and user data. If the instance is a burstable instance, you can also change its performance mode.

Description

If the API response contains `{"OperationLocks": {"LockReason" : "security"}}` when you query information about an instance, the instance is locked for security reasons and all operations are prohibited on the instance.

When you call ModifyInstanceAttribute to perform the following operations on an instance, take note of the following items:

- Modify the hostname (`HostName`): After the hostname is modified, you must restart the instance by using the ECS console or by calling the RebootInstance operation for the new hostname to take effect. The new hostname does not take effect if you restart the instance from within the operating system.
- Reset the password (`Password`):
  - The instance must not be in the **Starting** (`Starting`) state.

  - After the password is reset, you must restart the instance by using the ECS console or by calling the RebootInstance operation for the new password to take effect. The new password does not take effect if you restart the instance from within the operating system.
- Modify user data (`UserData`):
  - The instance must be in the **Stopped** (`Stopped`) state.
  - The instance must meet the limits of user data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceAttribute	The operation that you want to perform. Set the value to ModifyInstanceAttribute.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
Password	String	No	EcsV****	The password of the instance. The password must be 8 to 30 characters in length and contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `( ) ` ~ ! @ # $ % ^ & * - _ + = | { } [ ] : ; ' < > , . ? /` For Windows instances, the password cannot start with a forward slash (/). **Note** For security reasons, we recommend that you use HTTPS to send requests if the `Password` parameter is specified.

Parameter	Type	Required	Example	Description
HostName	String	No	LocalHost	The hostname of the instance. After the hostname is modified, call the RebootInstance operation for the new hostname to take effect. • For Windows Server, the hostname must be 2 to 15 characters in length and can contain letters, digits, and hyphens (-). It cannot start or end with a hyphen (-), contain consecutive hyphens (-), or contain only digits. • For other operating systems such as Linux, the hostname must be 2 to 64 characters in length. You can use periods (.) to separate a hostname into multiple segments. Each segment can contain letters, digits, and hyphens (-). The hostname cannot contain consecutive periods (.) or hyphens (-). It cannot start or end with a period (.) or a hyphen (-).
InstanceName	String	No	EcsInstance	The name of the instance. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-).
Description	String	No	InstanceAttribute	The description of the instance. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
UserData	String	No	ZWNobyBoZWxsbyBlY3Mh	The user data of the instance. User data must be encoded in Base64. The size of the user data must be no greater than 16 KB before it is encoded in Base64. We recommend that you do not pass in confidential information such as passwords and private keys in the plaintext format. If you must pass in confidential information, we recommend that you encrypt and Base64-encode the information before you pass it in. Then you can decode and decrypt the information in the same way within the instance.
Recyclable	Boolean	No	false	Specifies whether the instance can be recycled.
CreditSpecification	String	No	Standard	The performance mode of the burstable instance. Valid values: • Standard: standard mode • Unlimited: unlimited mode This parameter is empty by default.
DeletionProtection	Boolean	No	false	The release protection attribute of the instance. This parameter specifies whether you can use the ECS console or call the DeleteInstance operation to release the instance. This parameter is empty by default. **Note** This attribute can protect instances only against manual releases, not against automatic releases.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyInstanceAttribute
&InstanceId=i-bp67acfmxazb4ph***
&CreditSpecification=Standard
&DeletionProtection=false
&Description=InstanceAttribute
&HostName=LocalHost
&InstanceName=EcsInstance
&Password=EcsV*
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyInstanceAttributeResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</ModifyInstanceAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInstanceName.Malformed	The specified parameter "InstanceName" is not valid.	The error message returned because the specified InstanceName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidDescription.Malformed	The specified parameter "Description" is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.

HTTP status code	Error code	Error message	Description
400	InvalidHostPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.
400	InvalidHostName.Malformed	The specified parameter "HostName" is not valid.	The error message returned because the specified HostName parameter is invalid.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
403	OperationDenied	The instance amount in the specified SecurityGroup reach its limit.	The error message returned because the maximum number of instances in the specified security group has been reached.
403	OperationDenied	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
400	InvalidPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HTTP status code	Error code	Error message	Description
403	InvalidUserData.Forbidden	User not authorized to input the parameter "UserData"please apply for permission "UserData"	The error message returned because you are not authorized to configure the UserData parameter. Apply for the permissions first.
400	InvalidUserData.SizeExceeded	The specified parameter "UserData" exceeds the size.	The error message returned because the size of user data specified in the UserData value exceeds the upper limit.
400	InvalidUserData.NotSupported	The specified parameter "UserData" only support the vpc and IoOptimized Instance.	The error message returned because the specified UserData parameter is not supported. UserData is supported only on VPC-type instances and I/O optimized instances.
400	ImageNotSupportCloudInit	The specified image does not support cloud-init.	The error message returned because the specified image does not support cloud-init.
400	ChargeTypeViolation	Pay-As-You-Go instances do not support this operation.	The error message returned because the pay-as-you-go billing method does not support this operation.
400	InvalidParameter.RecycleBin	You do not have permission to set recyclable properties.	The error message returned because you are not authorized to perform this operation.
400	InvalidParameter.CreditSpecification	The specified CreditSpecification is not supported in this region.	The error message returned because the specified credit policy is not supported in the region.
400	InvalidInstanceStatus.CreditSpecRestricted	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
400	InvalidInstanceStatus.NotRunning	The current status of the resource is invalid, you can only do this operation when instance is running.	The error message returned because the operation is not supported while the instance is in the current state. Try again when the instance is in the Running state.
404	Credit.NotFound	The specified credit information does not exist.	The error message returned because the specified credit information does not exist.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidUser.Unauthorized	The user is not authorized	The error message returned because you are not authorized to perform this operation.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InstanceNotInSecurityGroup	The instance not in the group.	The error message returned because the specified instance does not belong to the security group.
403	InvalidOperation.InvalidRegion	%s	The error message returned because the specified RegionId parameter is invalid.
400	InvalidParameter	The specified parameter is not valid.	The error message returned because a specified parameter is invalid.
403	OperationDenied	The specified Image is disabled or is deleted.	The error message returned because the specified image has been disabled or deleted.

2.1.2.1.4.16. ModifyInstanceVncPasswd

You can call this operation to change the VNC password of an instance.

Description

- The VNC password must be six characters in length and can contain uppercase letters, lowercase letters, and digits.
- After you change the VNC password of an instance:
  - If the instance is I/O optimized, the new password takes effect immediately.
  - If the instance is not I/O optimized, you must restart the instance by using the ECS console or by calling the RebootInstance operation for the new password to take effect.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceVncPasswd	The operation that you want to perform. Set the value to ModifyInstanceVncPasswd.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
VncPassword	String	Yes	123456	The new VNC password of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyInstanceVncPasswd
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-bp67acfmxazb4ph***
&VncPassword=123456
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyInstanceVncPasswdResponse>
      <RequestId>FDB6C963-9CE8-4B7F-BCA3-845F6BD29AFC</RequestId>
</ModifyInstanceVncPasswdResponse>
```

`JSON` format

```
{
      "RequestId": "FDB6C963-9CE8-4B7F-BCA3-845F6BD29AFC"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
400	IncorrectVncPassword.Malformed	The specified parameter VncPassword is not valid.	The error message returned because the specified VncPassword parameter is invalid.
404	NoSuchResource	The specified resource is not found.	The error message returned because the specified resource does not exist.

2.1.2.1.5. Dedicated hosts

2.1.2.1.5.1. AllocateDedicatedHosts

You can call this operation to create one or more dedicated hosts. A dedicated host is a physical server dedicated to a single tenant. You can create ECS instances on a dedicated host and view the attributes of the dedicated host.

Description

Before you create a dedicated host, you can call the DescribeAvailableResource operation to view the available resources in the target region or zone.

- You can create a maximum of 100 dedicated hosts at a time.
- After you create a dedicated host, you can use its ID that is returned by the system as the request parameter to call the DescribeDedicatedHosts operation to query the status of the dedicated host.
- After you submit a request to create a dedicated host, an error is returned if a specified parameter is invalid or the requested resources are insufficient. For more information about error causes, see Error codes.
- After a dedicated host is created, you can call the ModifyInstanceDeployment operation to migrate ECS instances from a shared host to the dedicated host. You can also migrate ECS instances from another dedicated host to the created dedicated host.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AllocateDedicatedHosts	The operation that you want to perform. Set the value to AllocateDedicatedHosts.
DedicatedHostType	String	Yes	ddh.c5	The dedicated host type. You can call the DescribeDedicatedHostTypes operation to obtain the most recent list of dedicated host types.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the dedicated host. You can call the DescribeRegions operation to query the most recent region list.
Tag.N.Key	String	No	Environment	The key of tag N to be bound to the dedicated host. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	Production	The value of tag N to be bound to the dedicated host. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which to assign the dedicated host.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The ID of the zone in which to create the dedicated host. This parameter is empty by default, which indicates that the system automatically assigns a zone.

Parameter	Type	Required	Example	Description
DedicatedHostName	String	No	myDDH	The name of the dedicated host. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://.
ActionOnMaintenance	String	No	Migrate	The policy used to migrate the instances deployed on the dedicated host when the dedicated host fails or needs to be repaired online. Valid values: • Migrate: The instances are migrated to another physical server and restarted. If the dedicated host is attached with cloud disks, the default value is Migrate. • Stop: The instances on the dedicated host are stopped. If the dedicated host cannot be repaired, the instances are migrated to another physical server and restarted. If the dedicated host is attached with local disks, the default value is Stop.
NetworkAttributes.SlbUdpTimeout	Integer	No	60	The timeout period of the UDP session that is established to SLB. Unit: seconds. Valid values: 15 to 310.
NetworkAttributes.UdpTimeout	Integer	No	60	The timeout period for the UDP session between a user and an Apsara Stack service on the dedicated host. Unit: seconds. Valid values: 15 to 310.
Description	String	No	This-is-my-DDH	The description of the dedicated host. The description must be 2 to 256 characters in length and cannot start with http:// or https://.

Parameter	Type	Required	Example	Description
AutoPlacement	String	No	off	Specifies whether to add the dedicated host to the resource pool for automatic deployment. If you do not specify the **DedicatedHostId** parameter when you create an ECS instance on a dedicated host, Apsara Stack automatically selects a dedicated host from the resource pool to host the instance. Valid values: • on: adds the dedicated host to the resource pool for automatic deployment. • off: does not add the dedicated host to the resource pool for automatic deployment. Default value: on. **Note** If you do not want to add the dedicated host to the resource pool for automatic deployment, set the value to off.
Quantity	Integer	No	1	The number of dedicated hosts that you want to create. Valid values: 1 to 100 Default value: 1
AutoReleaseTime	String	No	2019-08-21T12:30:24Z	The automatic release time of the dedicated host. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. **Note** • It must be at least half an hour later than the current time. • It must be at most three years later than the current time. • If the value of the seconds (ss) is not 00, it is automatically set to 00.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
DedicatedHostIdSets	List	"DedicatedHostIdSets": {"DedicatedHostId": ["dh-bp67acfmxazb4ph***", "dh-bp67acfmxazb4pi***"]}	The IDs of the dedicated hosts.
RequestId	String	E2A664A6-2933-4C64-88AE-5033D003EADF	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AllocateDedicatedHosts
&RegionId=cn-qingdao-env17-d01
&DedicatedHostType=ddh.sn1ne
&Quantity=2
&ClientToken=123e4567-e89b-12d3-a456-426655440000
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateDedicatedHostsResponse>
    <RequestId>E2A664A6-2933-4C64-88AE-5033D003EADF</RequestId>
    <DedicatedHostIdSets>
        <DedicatedHostId>dh-bp67acfmxazb4ph***</DedicatedHostId>
        <DedicatedHostId>dh-bp67acfmxazb4pi***</DedicatedHostId>
    </DedicatedHostIdSets>
</AllocateDedicatedHostsResponse>
```

`JSON` format

```
{
    "RequestId":"E2A664A6-2933-4C64-88AE-5033D003EADF",
    "DedicatedHostIdSets":{
        "DedicatedHostId":[
            "dh-bp67acfmxazb4ph***",
            "dh-bp67acfmxazb4pi***"
        ]
    }
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorized.	The error message returned because you are not authorized to use the specified instance type.
400	InvalidDescription.Malformed	The specified parameter "Description" is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
403	OperationDenied	The creation of Host to the specified Zone is not allowed.	The error message returned because you are not authorized to create a dedicated host in the specified zone.
403	OperationDenied.NoStock	The requested resource is sold out in the specified zone; try other types of resources or other regions and zones.	The error message returned because the requested resources are insufficient.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	OperationDenied	Sales of this resource are temporarily suspended in the specified region; please try again later.	The error message returned because this resource is unavailable in the specified region. Try again later.

HTTP status code	Error code	Error message	Description
400	InvalidParameter.Conflict	The specified region and cluster do not match.	The error message returned because the specified region and the specified cluster do not correspond to each other.
403	NodeControllerUnavailable	The Node Controller is temporarily unavailable.	The error message returned because the node controller is unavailable.
404	OperationDenied	Another Host has been creating	The error message returned because another host is being created.
403	OperationDenied	The resource is out of usage.	The error message returned because the instance is not in the Running state. Start the instance or check whether the operation is valid.
404	PaymentMethodNotFound	No payment method has been registered on the account.	The error message returned because you have not registered a payment method for your account.
404	InvalidDedicatedHostName.Malformed	The specified parameter DedicatedHostName is not valid.	The error message returned because the specified DedicatedHostName parameter is invalid.
403	InvalidParameter.ResourceOwnerAccount	ResourceOwnerAccount is Invalid.	The error message returned because the specified ResourceOwnerAccount parameter is invalid.
403	InvalidUserData.Forbidden	User not authorized to input the parameter "UserData", please apply for permission "UserData"	The error message returned because you are not authorized to manage user data.
403	Zone.NotOpen	The specified zone is not granted to you to buy resources yet.	The error message returned because you are not authorized to purchase resources in the specified zone.
403	Zone.NotOnSale	The specified zone is not available for purchase.	The error message returned because the requested resources are unavailable in the specified zone. Change the resource type or select a different zone.

HTTP status code	Error code	Error message	Description
403	InvalidDedicatedHostType.ValueNotSupported	The specified DedicatedHostType does not exist or beyond the permitted range.	The error message returned because the specified DedicatedHostType parameter does not exist.
403	InvalidDedicatedHostType.ZoneNotSupported	The specified zone does not support this dedicatedHostType.	The error message returned because the specified DedicatedHostType parameter is not supported in the specified zone.
400	InvalidAutoRenewPeriod.ValueNotSupported	The specified autoRenewPeriod is not valid.	The error message returned because the specified AutoReleaseTime parameter is invalid.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidDedicatedHostType.ValueNotSupported	%s	The error message returned because the specified DedicatedHostType parameter is invalid.
400	RegionUnauthorized	%s	The error message returned because you are not authorized to perform the operation in the specified region.
500	InternalError	%s	The error message returned because an internal error has occurred. Try again later.
400	Zone.NotOnSale	%s	The error message returned because the requested resources are unavailable in the specified zone.
400	OperationDenied	The specified DedicatedHostType or Zone is not available or not authorized.	The error message returned because the specified dedicated host type or zone is unavailable or you are not authorized to manage the resources.
400	InvalidPeriodUnit.ValueNotSupported	The specified parameter PeriodUnit is not valid.	The error message returned because the specified PeriodUnit parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
403	InvalidParameter.NotMatch	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
403	Account.Arrearage	Your account has been in arrears.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
400	QuotaExceed.AfterpayDedicatedHost	The maximum number of Pay-As-You-Go DedicatedHosts is exceeded: %s	The error message returned because the pay-as-you-go resources of the specified dedicated host type are insufficient. Reduce the number of dedicated hosts to be created.
400	InvalidChargeType.ValueNotSupported	ChargeType is not valid	The error message returned because the specified billing method is invalid.
400	InvalidParameter.SlbUdpTimeout	The specified value is invalid.	The error message returned because the specified NetworkAttributes.SlbUdpTimeout parameter is invalid.
400	InvalidParameter.UdpTimeout	The specified value is invalid.	The error message returned because the specified NetworkAttributes.UdpTimeout parameter is invalid.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.

2.1.2.1.5.2. ModifyDedicatedHostAttribute

You can call this operation to modify some attributes of a dedicated host, such as the name, description, and instance migration policy applied when the dedicated host fails.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDedicatedHostAttribute	The operation that you want to perform. Set this parameter to ModifyDedicatedHostAttribute.
DedicatedHostId	String	Yes	ddh-xxxxxxxxxxxxxxxxxxx	The ID of the dedicated host.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the dedicated host. You can call the DescribeRegions operation to query the most recent region list.
DedicatedHostName	String	No	myDDH	The name of the dedicated host. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
Description	String	No	this-is-my-ddh	The description of the dedicated host. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
ActionOnMaintenance	String	No	Migrate	The policy used to migrate the instances deployed on the dedicated host when the dedicated host fails or needs to be repaired online. Valid values: • Migrate: The instances are migrated to another physical server and restarted. • Stop: The instances on the dedicated host are stopped. If the dedicated host cannot be repaired, the instances are migrated to another physical server and restarted. If the dedicated host is attached with cloud disks, the default value is Migrate. If the dedicated host is attached with local disks, the default value is Stop.

Parameter	Type	Required	Example	Description
NetworkAttributes.SlbUdpTimeout	Integer	No	60	The timeout period of the UDP session that is established to SLB. Unit: seconds. Valid values: 15 to 310.
NetworkAttributes.UdpTimeout	Integer	No	60	The timeout period for the UDP session between a user and an Apsara Stack service on the dedicated host. Unit: seconds. Valid values: 15 to 310.
AutoPlacement	String	No	on	Specifies whether to add the dedicated host to the resource pool for automatic deployment. If you do not specify the **DedicatedHostId** parameter when you create an instance on a dedicated host, Apsara Stack automatically selects a dedicated host from the resource pool to host the instance. Valid values: • on: adds the dedicated host to the resource pool for automatic deployment. • off: does not add the dedicated host to the resource pool for automatic deployment.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2A4EA075-CB5B-41B7-B0EB-70D339F64DE7	The ID of the request.

Examples

Sample requests

```
http(s)://ecs.example.com/? Action=ModifyDedicatedHostAttribute
&DedicatedHostId=ddh-xxxxxxxxxxxxxxxxxx
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDedicatedHostAttributeResponse>
    <RequestId>2A4EA075-CB5B-41B7-B0EB-70D339F64DE7</RequestId>
</ModifyDedicatedHostAttributeResponse>
```

`JSON` format

```
{
    "RequestId":"2A4EA075-CB5B-41B7-B0EB-70D339F64DE7"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
400	InvalidDedicatedHostName.Malformed	The specified parameter DedicatedHostName is not valid.	The error message returned because the specified DedicatedHostName parameter is invalid.
400	InvalidDescription.Malformed	The specified parameter Description is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
403	InvalidUser.Unauthorized	The user is not authorized	The error message returned because you are not authorized to perform this operation.
400	InvalidParameter.SlbUdpTimeout	The specified value is invalid.	The error message returned because the specified NetworkAttributes.SlbUdpTimeout parameter is invalid.
400	InvalidParameter.UdpTimeout	The specified value is invalid.	The error message returned because the specified NetworkAttributes.UdpTimeout parameter is invalid.

2.1.2.1.5.3. ModifyInstanceDeployment

You can call this operation to change the deployment set of an instance or migrate an instance to a dedicated host. When you migrate an instance, you can change its instance type.

Description

When you migrate an instance to a dedicated host or change the instance type during the migration, make sure that the following requirements are met:

- The instance is in the **Stopped** (Stopped) state. The instance is automatically restarted after the migration.
- The instance is located in a VPC.
- The instance and the dedicated host belong to the same region, zone, and account.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceDeployment	The operation that you want to perform. Set the value to ModifyInstanceDeployment.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance. The instance must be in the **Stopped** (Stopped) state.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
DeploymentSetId	String	No	ds-bp67acfmxazb4ph***	The ID of the deployment set. If you want to add an instance to a deployment set or change the deployment set of an instance, you must specify this parameter. **Note** You cannot change the deployment set of an instance when you modify dedicated host-related parameters of the instance, such as `Tenancy`, `Affinity`, and `DedicatedHostId`.

Parameter	Type	Required	Example	Description
Force	Boolean	No	false	Specifies whether to forcibly change the host of the instance. Default value: false. Valid values: • true: forcibly changes the host of the instance. The instance must be in the **Running** (Running) or **Stopped** (Stopped) state so that it can be restarted for the host change to take effect. • false: does not forcibly change the host of the instance. You can add the instance to a deployment set only when the instance resides on the current host. If you change the host of the instance, deployment set replacement may fail.
DedicatedHostId	String	No	dh-bp67acfmxazb4ph***	The ID of the destination dedicated host. You can call the DescribeDedicatedHosts operation to query the available dedicated hosts. When you migrate an instance from a shared host to a dedicated host or from one dedicated host to another: • To migrate the instance to a specific dedicated host, you must specify this parameter. • To migrate the instance to an automatically selected dedicated host, you must leave this parameter empty and set `Tenancy` to host.
Tenancy	String	No	host	Specifies whether to deploy the instance on a dedicated host. Valid value: host. This value indicates that the instance is deployed on a dedicated host.

Parameter	Type	Required	Example	Description
MigrationType	String	No	live	Specifies whether to stop the instance to migrate it to the destination dedicated host. Default value: reboot. Valid values: • reboot: stops the instance to migrate it. • live: does not stop the instance to migrate it. In this case, you must specify **DedicatedHostId**. If you set MigrationType to live, you cannot change the instance type during the migration.
InstanceType	String	No	ecs.c6.large	The target instance type. You can call the DescribeInstanceTypes operation to query the most recent instance type list. When you migrate an instance to a dedicated host, you can change the instance type. The target instance type must match the specified dedicated host type. • To change the instance type, you must specify `DedicatedHostId`. • You cannot change the instance type when you use the automatic deployment feature to migrate the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	04F0F334-1335-436C-A1D7-6C044FE73368	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyInstanceDeployment
&InstanceId=i-bp67acfmxazb4ph****
&RegionId=cn-qingdao-env17-d01
&DedicatedHostId=dh-bp67acfmxazb4ph****
&Tenancy=host
&MigrationType=live
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyInstanceDeploymentResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</ModifyInstanceDeploymentResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	OperationDenied.UnstoppedInstance	Operation denied due to unstopped instance.	The error message returned because the operation is not supported while the instance is in the current state. Check whether the instance is stopped.
400	InvalidDedicatedHostStatus.NotSupport	Operation denied due to dedicated host status.	The error message returned because the operation is not supported while the dedicated host is in the current state.
400	InvalidPeriod.ExceededDedicatedHost	Instance expired date can't exceed dedicated host expired date.	The error message returned because the expiration date of the instance is later than that of the dedicated host.
404	InvalidInstanceNetworkType.NotSupport	The specified Instance network type not support.	The error message returned because the operation is not supported while the instance is of the current network type.
404	InvalidInstanceType.NotSupport	The Dedicated host not support the specified instance type.	The error message returned because the dedicated host does not support the specified instance type.

HTTP status code	Error code	Error message	Description
400	OperationDenied.LocalDiskInstance	Operation denied due to instance has local disk	The error message returned because the operation is denied while the instance is equipped with local disks.
403	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidParam.Tenancy	The specified Tenancy is invalid.	The error message returned because the specified Tenancy parameter is invalid.
403	OperationDenied.NoStock	The resource is out of usage.	The error message returned because the instance is not in the Running state. Start the instance or check whether the operation is valid.
400	ChargeTypeViolation.PostPaidDedicatedHost	Prepaid instance onto postpaid dedicated host is not allowed	The error message returned because subscription instances cannot be deployed to pay-as-you-go dedicated hosts.
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or you are not authorized to manage instances of the specified instance type.

2.1.2.1.5.4. DescribeDedicatedHostTypes

You can call this operation to query the details about dedicated host types supported in a region, or the ECS instance families supported by a specific dedicated host type.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDedicatedHostTypes	The operation that you want to perform. Set the value to DescribeDedicatedHostTypes.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
DedicatedHostType	String	No	ddh.sn1ne	The dedicated host type.
SupportedInstanceTypeFamily	String	No	ecs.sn1ne	The ECS instance family supported by the dedicated host type.

Response parameters

Parameter	Type	Example	Description
DedicatedHostTypes	Array		The collection of details about dedicated host types.
DedicatedHostType			
Cores	Integer	2	The number of cores in a single physical CPU.
DedicatedHostType	String	ddh.sn1ne	The dedicated host type. You can submit a ticket to request more dedicated host types.
GPUSpec	String	gpu	The GPU model.
LocalStorageAmount	Integer	0	The number of local disks on a dedicated host.
LocalStorageCapacity	Long	0	The capacity of a local disk. Unit: GiB.
LocalStorageCategory	String	local	The category of the local disk.
MemorySize	Float	112.0	The size of the memory. Unit: GiB.
PhysicalGpus	Integer	2	The number of physical GPUs.
Sockets	Integer	2	The number of physical CPUs.

Parameter	Type	Example	Description
SupportedInstanceTypeFamilies	List	ecs.sn1ne	The ECS instance families supported by the dedicated host type.
SupportedInstanceTypesList	List	ecs.sn1ne.large	The ECS instance types supported by the dedicated host type.
TotalVcpus	Integer	56	The total number of vCPUs.
TotalVgpus	Integer	10	The total number of vGPUs.
RequestId	String	5FE5FF06-3A33-4658-8495-6445FC54E327	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDedicatedHostTypes
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDedicatedHostTypesResponse>
    <DedicatedHostTypes>
        <DedicatedHostType>
            <LocalStorageAmount>0</LocalStorageAmount>
            <Sockets>2</Sockets>
            <DedicatedHostType>ddh.sn1ne</DedicatedHostType>
            <LocalStorageCapacity>0</LocalStorageCapacity>
            <SupportedInstanceTypeFamilies>
                <SupportedInstanceTypeFamily>ecs.sn1ne</SupportedInstanceTypeFamily>
            </SupportedInstanceTypeFamilies>
            <MemorySize>112.0</MemorySize>
            <Cores>32</Cores>
            <TotalVcpus>56</TotalVcpus>
            <LocalStorageCategory></LocalStorageCategory>
        </DedicatedHostType>
        <DedicatedHostType>
            <LocalStorageAmount>0</LocalStorageAmount>
            <Sockets>2</Sockets>
            <DedicatedHostType>ddh.sn2ne</DedicatedHostType>
            <LocalStorageCapacity>0</LocalStorageCapacity>
            <SupportedInstanceTypeFamilies>
                <SupportedInstanceTypeFamily>ecs.sn2ne</SupportedInstanceTypeFamily>
            </SupportedInstanceTypeFamilies>
            <MemorySize>224.0</MemorySize>
            <Cores>32</Cores>
            <TotalVcpus>56</TotalVcpus>
            <LocalStorageCategory></LocalStorageCategory>
        </DedicatedHostType>
    </DedicatedHostTypes>
    <RequestId>5FE5FF06-3A33-4658-8495-6445FC54E327</RequestId>
</DescribeDedicatedHostTypesResponse>
```

`JSON` format

```
{
    "DedicatedHostTypes":{
        "DedicatedHostType":[
            {
                "LocalStorageAmount":0,
                "Sockets":2,
                "DedicatedHostType":"ddh.sn1ne",
                "LocalStorageCapacity":0,
                "SupportedInstanceTypeFamilies":{
                    "SupportedInstanceTypeFamily":[
                        "ecs.sn1ne"
                    ]
                },
                "MemorySize":112,
                "Cores":32,
                "TotalVcpus":56,
                "LocalStorageCategory":""
            },
            {
                "LocalStorageAmount":0,
                "Sockets":2,
                "DedicatedHostType":"dh.c60m83.n1",
                "LocalStorageCapacity":0,
                "SupportedInstanceTypeFamilies":{
                    "SupportedInstanceTypeFamily":[
                        "ecs.n1"
                    ]
                },
                "MemorySize":84,
                "Cores":32,
                "TotalVcpus":40,
                "LocalStorageCategory":""
            }
        ]
    },
    "RequestId":"9A0FE8A2-720C-45AE-B2D9-813060FCBBF5"
}
```


2.1.2.1.5.5. DescribeDedicatedHosts

You can call this operation to query the details about one or more dedicated hosts, including the physical performance specifications, machine code, service status, and a list of ECS instances that are deployed on the dedicated hosts.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDedicatedHosts	The operation that you want to perform. Set the value to DescribeDedicatedHosts.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the dedicated host. You can call the DescribeRegions operation to query the most recent region list.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The zone ID of the dedicated host.
DedicatedHostIds	String	No	["dh-bp165p6xk2tlw61e****", "dh-bp165p6xk2tlw61e****", ... "dh-bp165p6xk2tlw61e****"]	The IDs of dedicated hosts. You can specify up to 100 dedicated host IDs in a single request. Separate multiple IDs with commas (,).
DedicatedHostName	String	No	test-DedicatedHostName	The name of the dedicated host.
Status	String	No	Available	The service status of the dedicated host. Default value: Available. Valid values: • Available: The dedicated host is available for use. • Under-Assessment: The dedicated host has potential failures and may fail when it is used. • Permanent-Failure: The dedicated host has permanent failures and cannot be used.
DedicatedHostType	String	No	ddh.g5	The dedicated host type.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100 Default value: 10.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N of the dedicated host. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	TestValue	The value of tag N of the dedicated host. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
DedicatedHosts	Array		The collection of details about dedicated hosts.
DedicatedHost			
ActionOnMaintenance	String	Migrate	The policy used to migrate the instances deployed on the dedicated host when the dedicated host fails or needs to be repaired online. Valid values: • Migrate: The instances are migrated to another physical server and restarted. If the dedicated host is attached with cloud disks, the default value is Migrate. • Stop: The instances on the dedicated host are stopped. If the dedicated host cannot be repaired, the instances are migrated to another physical server and restarted. If the dedicated host is attached with local disks, the default value is Stop.

Parameter	Type	Example	Description
AutoPlacement	String	on	Indicates whether the dedicated host was added to the resource pool for automatic deployment. Valid values: • on: The dedicated host was added to the resource pool for automatic deployment. • off: The dedicated host was not added to the resource pool for automatic deployment.
AutoReleaseTime	String	2017-01-01T12:00:00Z	The automatic release time of the dedicated host. The time follows the ISO 8601 standard in the `yyyy-MM-ddTHH:mmZ` format. The time is displayed in UTC.
Capacity	Struct		The performance specifications of the dedicated host.
AvailableLocalStorage	Integer	65	The available space of the local disk. Unit: GiB.
AvailableMemory	Float	25	The available space of the memory. Unit: GiB.
AvailableVcpus	Integer	5	The number of available vCPUs.
AvailableVgpus	Integer	2	The number of available vGPUs.
LocalStorageCategory	String	i2	The category of the local disk.
TotalLocalStorage	Integer	512	The total capacity of the local disk. Unit: GiB.
TotalMemory	Float	1024	The total capacity of the memory. Unit: GiB.
TotalVcpus	Integer	56	The total number of vCPUs.
TotalVgpus	Integer	10	The total number of vGPUs.

Parameter	Type	Example	Description
ChargeType	String	test	**Note** This parameter is not supported.
Cores	Integer	3	The number of physical cores in a single CPU.
CreationTime	String	2018-01-01T12:00:00Z	The time when the dedicated host was created. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
DedicatedHostId	String	dh-bp165p6xk2tlw61e****	The ID of the dedicated host.
DedicatedHostName	String	myDDH	The name of the dedicated host.
DedicatedHostType	String	ddh.g5	The dedicated host type.
Description	String	This is a description example.	The description of the dedicated host.
ExpiredTime	String	test	**Note** This parameter is not supported.
GPUSpec	String	gpu	The GPU model.
Instances	Array		The ECS instances that are deployed on the dedicated host.
Instance			
InstanceId	String	i-bp1a0cmfrfi71qlh3fk3	The ID of the ECS instance.
InstanceType	String	ecs.g5	The instance family of the ECS instance.
MachineId	String	2099-09-08T16:00Z	The machine code of the dedicated host.

Parameter	Type	Example	Description
NetworkAttributes	Struct		The network attributes of the dedicated host.
SlbUdpTimeout	Integer	60	The timeout period of the UDP session that was established to SLB.
UdpTimeout	Integer	60	The timeout period of the UDP session.
OperationLocks	Array		The reasons why the resources of the dedicated host were locked.
OperationLock			
LockReason	String	financial	The reason why the resource of the dedicated host was locked.
PhysicalGpus	Integer	10	The number of physical GPUs.
RegionId	String	cn-qingdao-env17-d01	The region ID of the dedicated host.
ResourceGroupId	String	rg-****	The ID of the resource group to which the dedicated host belongs.
SaleCycle	String	test	**Note** This parameter is not supported.
Sockets	Integer	5	The number of physical CPUs.
Status	String	Available	The service status of the dedicated host. Valid values: Available, Under-Assessment, and Permanent-Failure.
SupportedCustomInstanceTypeFamilies	List	ecs.ddh6s.custom	The custom instance families supported by the dedicated host.
SupportedInstanceTypeFamilies	List	ecs.g5	The ECS instance types supported by the dedicated host.

Parameter	Type	Example	Description
SupportedInstanceTypesList	List	ecs.g5	The ECS instance type supported by the dedicated host.
Tags	Array		The tags of the dedicated host.
Tag			
TagKey	String	TestKey	The tag key of the dedicated host.
TagValue	String	TestValue	The tag value of the dedicated host.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The zone ID of the dedicated host.
PageNumber	Integer	5	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	C9E9EA51-6B74-409E-BA40-107126A200D4	The ID of the request.
TotalCount	Integer	3	The total number of dedicated hosts.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDedicatedHosts
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDedicatedHostsResponse>
      <PageNumber>1</PageNumber>
      <DedicatedHosts>
            <DedicatedHost>
                  <DedicatedHostId>dh-bp165p6xk2tlw61e****</DedicatedHostId>
                  <Description></Description>
                  <ResourceGroupId></ResourceGroupId>
                  <SupportInstanceTypeFamilies>
                        <SupportInstanceTypeFamily>ecs.se1ne</SupportInstanceTypeFamily>
                  </SupportInstanceTypeFamilies>
                  <Instances>
            </Instances>
                  <Cores>32</Cores>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
                  <CreationTime>2018-08-13T07:59Z</CreationTime>
                  <Sockets>2</Sockets>
                  <Status>Available</Status>
                  <DedicatedHostType>ddh.se1ne</DedicatedHostType>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <DedicatedHostName>test-DedicatedHostName</DedicatedHostName>
                  <Capacity>
                        <AvailableVcpus>56</AvailableVcpus>
                        <TotalMemory>448</TotalMemory>
                        <TotalVcpus>56</TotalVcpus>
                        <AvailableLocalStorage>0</AvailableLocalStorage>
                        <TotalLocalStorage>0</TotalLocalStorage>
                        <LocalStorageCategory></LocalStorageCategory>
                        <AvailableMemory>448</AvailableMemory>
                  </Capacity>
                  <OperationLocks>
            </OperationLocks>
                  <MachineId> 73aa79494f26e****</MachineId>
            </DedicatedHost>
      </DedicatedHosts>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>9D5CC4F5-921A-4E02-B971-0DAF703407BE</RequestId>
</DescribeDedicatedHostsResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "DedicatedHosts": {
        "DedicatedHost": [
            {
                "DedicatedHostId": "dh-bp165p6xk2tlw61e****",
                "Description": "",
                "ResourceGroupId": "",
                "SupportInstanceTypeFamilies": {
                    "SupportInstanceTypeFamily": [
                        "ecs.se1ne"
                    ]
                },
                "Instances": {
                    "Instance": []
                },
                "Cores": 32,
                "ZoneId": "cn-qingdao-env17-amtest11001-a",
                "CreationTime": "2018-08-13T07:59Z",
                "Sockets": 2,
                "Status": "Available",
                "DedicatedHostType": "ddh.se1ne",
                "RegionId": "cn-qingdao-env17-d01",
                "DedicatedHostName": "test-DedicatedHostName",
                "AutoReleaseTime": "",
                "Capacity": {
                    "AvailableVcpus": 56,
                    "TotalMemory": 448,
                    "TotalVcpus": 56,
                    "AvailableLocalStorage": 0,
                    "TotalLocalStorage": 0,
                    "LocalStorageCategory": "",
                    "AvailableMemory": 448
                },
                "OperationLocks": {
                    "OperationLock": []
                },
                "MachineId": " 73aa79494f26e****",
            }
        ]
    },
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "9D5CC4F5-921A-4E02-B971-0DAF703407BE"
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidStatus.ValueNotSupported	The pecified dedicated host status is not supported.	The error message returned because the operation is not supported while the dedicated host is in the current state.
400	MissingParamter.RegionId	The regionId should not be null.	The error message returned because the required RegionId parameter is not specified.
403	InvalidDedicatedHostIds.Malformed	The amount of specified dedicatedHostIds exceeds the limit.	The error message returned because more than 100 dedicated host IDs are specified in the DedicatedHostIds value.
400	InvalidParameter.DedicatedHostIds	The specified parameter dedicatedHostIds is not valid.	The error message returned because the specified DedicatedHostIds parameter is invalid.
400	InvalidRegion.NotFound	The specified parameter RegionId is not valid.	The error message returned because the specified RegionId parameter is invalid.
400	InvalidZone.NotFound	The specified parameter ZoneId is not valid.	The error message returned because the specified ZoneId parameter is invalid.
404	InvalidLockReason.NotFound	The specified LockReason is not found	The error message returned because the specified reason why the resources of the dedicated host were locked does not exist.

2.1.2.1.5.6. ReleaseDedicatedHost

You can call this operation to release a dedicated host.

Description

Before you release a dedicated host, make sure that no ECS instances are deployed on the dedicated host.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ReleaseDedicatedHost	The operation that you want to perform. Set the value to ReleaseDedicatedHost.
DedicatedHostId	String	Yes	dh-xxxxxxxxxxxxxxxx	The ID of the dedicated host to be released.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the dedicated host. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	A1B15AC8-E6F6-49A4-8985-8C07104B9199	The ID of the request.

Examples

Sample requests

```
http(s)://ecs.example.com/? Action=ReleaseDedicatedHost
&DedicatedHostId=dh-xxxxxxxxxxxxxxxx
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleaseDedicatedHostResponse>
    <RequestId>A1B15AC8-E6F6-49A4-8985-8C07104B9199</RequestId>
</ReleaseDedicatedHostResponse>
```

`JSON` format

```
{
    "RequestId":"A1B15AC8-E6F6-49A4-8985-8C07104B9199"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InstanceExist	Instance exists on the dedicated host.	The error message returned because ECS instances exist on the dedicated host.
400	ChargeTypeViolation	The operation is not permitted due to charge type of the dedicated host.	The error message returned because the billing method of the dedicated host does not support this operation.
400	IncorrectHostStatus.Initializing	The specified dedicatedHost status is not support this operation	The error message returned because the operation is not supported while the dedicated host is in the current state.
404	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.5.7. CreateDedicatedHostCluster

You can call this operation to create a dedicated host cluster.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDedicatedHostCluster	The operation that you want to perform. Set the value to CreateDedicatedHostCluster.
RegionId	String	Yes	cn-qingdao-env8e-d01	The ID of the region in which to create the dedicated host cluster. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Valid values: • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made. Default value: false.
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the dedicated host cluster. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 64 characters in length and cannot start with `acs:` or `aliyun`. It cannot contain `http://` or `https://`.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the dedicated host cluster. Valid values of N: 1 to 20. The tag value cannot be an empty string. It can be up to 64 characters in length and cannot start with `acs:` or `aliyun`. It cannot contain `http://` or `https://`.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the dedicated host cluster.
ZoneId	String	No	cn-qingdao-env8e-nu20001-a	The ID of the zone in which to create the dedicated host cluster. You can call the DescribeZones operation to query the most recent zone list.

Parameter	Type	Required	Example	Description
DedicatedHostClusterName	String	No	myDDHCluster	The name of the dedicated host cluster. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. It cannot contain `http://` or `https://`. This parameter is empty by default.
Description	String	No	This-is-my-DDHCluster	The description of the dedicated host cluster. The description must be 2 to 256 characters in length. It cannot start with `http://` or `https://`. This parameter is empty by default.

Response parameters

Parameter	Type	Example	Description
DedicatedHostClusterId	String	dc-bp12wlf6bw0vz9v2****	The ID of the dedicated host cluster.
RequestId	String	E2A664A6-2933-4C64-88AE-5033D003EADF	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateDedicatedHostCluster
&RegionId=cn-qingdao-env8e-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDedicatedHostClusterResponse>
        <RequestId>214A2187-B06F-4E49-A081-4D053466A8C7</RequestId>
        <DedicatedHostClusterId>dc-bp12wlf6bw0vz9v2****</DedicatedHostClusterId>
</CreateDedicatedHostClusterResponse>
```

`JSON` format

```
{
    "RequestId": "214A2187-B06F-4E49-A081-4D053466A8C7",
    "DedicatedHostClusterId": "dc-bp12wlf6bw0vz9v2****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.

2.1.2.1.5.8. DescribeDedicatedHostClusters

You can call this operation to query details of one or more dedicated host clusters.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDedicatedHostClusters	The operation that you want to perform. Set the value to DescribeDedicatedHostClusters.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env8e-d01	The region ID of the dedicated host cluster. You can call the DescribeRegions operation to query the most recent region list.
Tag.N.Key	String	No	TestKey	The key of tag N of the dedicated host cluster. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 64 characters in length and cannot start with `acs:` or `aliyun`. It cannot contain `http://` or `https://`. If a single tag is specified to query resources, up to 1,000 resources that are bound with this tag can be displayed in the response. If multiple tags are specified to query resources, up to 1,000 resources that are bound with all these tags can be displayed in the response. To query more than 1,000 resources that are bound with specified tags, call the ListTagResources operation.
Tag.N.Value	String	No	TestValue	The value of tag N of the dedicated host cluster. Valid values of N: 1 to 20. The tag value cannot be an empty string. It can be up to 64 characters in length and cannot start with `acs:` or `aliyun`. It cannot contain `http://` or `https://`.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the dedicated host cluster belongs. If this parameter is specified to query resources, up to 1,000 resources that belong to the specified resource group can be displayed in the response.
ZoneId	String	No	cn-qingdao-env8e-nu20001-a	The zone ID of the dedicated host cluster. You can call the DescribeZones operation to query the most recent zone list.

Parameter	Type	Required	Example	Description
DedicatedHostClusterIds	String	No	["dc-bp12wlf6am0vz9v2****", "dc-bp12wlf6am0vz9v3****"]	The IDs of dedicated host clusters. The value can be a JSON array that consists of up to 100 dedicated host cluster IDs in the format of `["dc-xxxxxxxxx", "dc-yyyyyyyyy", ... "dc-zzzzzzzzz"]`. Separate multiple IDs with commas (,).
DedicatedHostClusterName	String	No	myDDHCluster	The name of the dedicated host cluster.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	5	The number of entries to return per page. Valid values: 1 to 100. Default value: 10.

Response parameters

Parameter	Type	Example	Description
DedicatedHostClusters	Array of DedicatedHostCluster		Details about the dedicated host clusters.
DedicatedHostCluster			
DedicatedHostClusterCapacity	Struct		The capacity of the dedicated host cluster.
AvailableMemory	Integer	4	The available memory size. Unit: GiB.
AvailableVcpus	Integer	2	The number of available vCPUs.
LocalStorageCapacities	Array of LocalStorageCapacity		The local storage capacity.

Parameter	Type	Example	Description
LocalStorageCapacity			
AvailableDisk	Integer	20	The available capacity of the local disk. Unit: GiB.
DataDiskCategory	String	cloud	The category of the data disk. Valid values: • cloud: basic disk. • cloud_efficiency: ultra disk • cloud_ssd: standard SSD
TotalDisk	Integer	40	The total capacity of the local disk. Unit: GiB.
TotalMemory	Integer	8	The total memory size. Unit: GiB.
TotalVcpus	Integer	4	The total number of vCPUs.
DedicatedHostClusterId	String	dc-bp12wlf6am0vz9v2****	The ID of the dedicated host cluster.
DedicatedHostClusterName	String	myDDHCluster	The name of the dedicated host cluster.
DedicatedHostIds	List	["dh-bp181e5064b5sotr*****","dh-bp18064b5sotrr9c*****"]	The IDs of dedicated hosts in the dedicated host cluster.
Description	String	This-is-my-DDHCluster	The description of the dedicated host cluster.
RegionId	String	cn-qingdao-env8e-d01	The region ID of the dedicated host cluster.
ResourceGroupId	String	rg-bp67acfmxazb4p****	The ID of the resource group to which the dedicated host cluster belongs.
Tags	Array of Tag		The tags of the dedicated host cluster.
Tag			

Parameter	Type	Example	Description
TagKey	String	TestKey	The tag key of the dedicated host cluster.
TagValue	String	TestValue	The tag value of the dedicated host cluster.
ZoneId	String	cn-qingdao-env8e-nu20001-a	The zone ID of the dedicated host cluster.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	5	The number of entries returned per page.
RequestId	String	214A2187-B06F-4E49-A081-4D053466A8C7	The ID of the request.
TotalCount	Integer	2	The total number of dedicated host clusters.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDedicatedHostClusters
&RegionId=cn-qingdao-env8e-d01
&ZoneId=cn-qingdao-env8e-nu20001-a
&DedicatedHostClusterName=myDDHCluster
&PageNumber=1
&PageSize=5
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDedicatedHostClustersResponse>
        <DedicatedHostClusters>
                <DedicatedHostCluster>
                        <Description>This-is-my-DDHCluster</Description>
                        <ZoneId>cn-qingdao-env8e-nu20001-a</ZoneId>
                        <DedicatedHostClusterName>myDDHCluster</DedicatedHostClusterName>
                        <ResourceGroupId>rg-bp67acfmxazb4p****</ResourceGroupId>
                        <DedicatedHostClusterCapacity>
                                <TotalMemory>0</TotalMemory>
                                <AvailableMemory>0</AvailableMemory>
                                <AvailableVcpus>0</AvailableVcpus>
                                <TotalVcpus>0</TotalVcpus>
                                <LocalStorageCapacities>
                </LocalStorageCapacities>
                        </DedicatedHostClusterCapacity>
                        <RegionId>cn-qingdao-env8e-d01</RegionId>
                        <DedicatedHostIds>
            </DedicatedHostIds>
                        <DedicatedHostClusterId>dc-bp1i7d8p4ku9jgob****</DedicatedHostClust
erId>
                </DedicatedHostCluster>
        </DedicatedHostClusters>
        <TotalCount>1</TotalCount>
        <RequestId>502C9C44-B851-44F4-8805-3EC15E726745</RequestId>
        <PageSize>10</PageSize>
        <PageNumber>1</PageNumber>
</DescribeDedicatedHostClustersResponse>
```

`JSON` format

```
{
    "DedicatedHostClusters": {
        "DedicatedHostCluster": [
            {
                "Description": "This-is-my-DDHCluster",
                "ZoneId": "cn-qingdao-env8e-nu20001-a",
                "DedicatedHostClusterName": "myDDHCluster",
                "ResourceGroupId": "rg-bp67acfmxazb4p****",
                "DedicatedHostClusterCapacity": {
                    "TotalMemory": 0,
                    "AvailableMemory": 0,
                    "AvailableVcpus": 0,
                    "TotalVcpus": 0,
                    "LocalStorageCapacities": {
                        "LocalStorageCapacity": []
                    }
                },
                "RegionId": "cn-qingdao-env8e-d01",
                "DedicatedHostIds": {
                    "DedicatedHostId": []
                },
                "DedicatedHostClusterId": "dc-bp1i7d8p4ku9jgob****"
            }
        ]
    },
    "TotalCount": 1,
    "RequestId": "502C9C44-B851-44F4-8805-3EC15E726745",
    "PageSize": 10,
    "PageNumber": 1
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	MissingParamter.RegionId	The regionId should not be null.	The error message returned because the RegionId parameter is not specified.
400	InvalidRegion.NotFound	The specified parameter RegionId is not valid.	The error message returned because the specified RegionId parameter is invalid.
400	InvalidZone.NotFound	The specified parameter ZoneId is not valid.	The error message returned because the specified ZoneId parameter is invalid.

2.1.2.1.5.9. ModifyDedicatedHostClusterAttribute

You can call this operation to modify some attributes of a dedicated host cluster, such as the name and description.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDedicatedHostClusterAttribute	The operation that you want to perform. Set the value to ModifyDedicatedHostClusterAttribute.
DedicatedHostClusterId	String	Yes	dc-bp12wlf6am0vz9v2****	The ID of the dedicated host cluster.
RegionId	String	Yes	cn-qingdao-env8e-d01	The region ID of the dedicated host cluster. You can call the DescribeRegions operation to query the most recent region list.
DedicatedHostClusterName	String	No	newClusterName	The new name of the dedicated host cluster. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot contain `http://` or `https://`.
Description	String	No	newClusterDescription	The new description of the dedicated host cluster. The description must be 2 to 256 characters in length. It cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	11B55F58-D3A4-4A9B-9596-342420D02FF8	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyDedicatedHostClusterAttribute
&RegionId=cn-qingdao-env8e-d01
&DedicatedHostClusterId=dc-bp12wlf6am0vz9v2****
&DedicatedHostClusterName=newClusterName
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDedicatedHostClusterAttributeResponse>
        <RequestId>11B55F58-D3A4-4A9B-9596-342420D02FF8</RequestId>
</ModifyDedicatedHostClusterAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "11B55F58-D3A4-4A9B-9596-342420D02FF8"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidDescription.Malformed	The specified parameter Description is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
403	InvalidUser.Unauthorized	The user is not authorized	The error message returned because you are not authorized to perform this operation.

2.1.2.1.5.10. DeleteDedicatedHostCluster

You can call this operation to delete a dedicated host cluster.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDedicatedHostCluster	The operation that you want to perform. Set the value to DeleteDedicatedHostCluster.

Parameter	Type	Required	Example	Description
DedicatedHostClusterId	String	Yes	dc-bp12wlf6am0vz9v2****	The ID of the dedicated host cluster.
RegionId	String	Yes	cn-qingdao-env8e-d01	The region ID of the dedicated host cluster.

Response parameters

Parameter	Type	Example	Description
RequestId	String	11B55F58-D3A4-4A9B-9596-342420D02FF8	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteDedicatedHostCluster
&DedicatedHostClusterId=dc-bp12wlf6am0vz9v2****
&RegionId=cn-qingdao-env8e-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDedicatedHostClusterResponse>
        <RequestId>11B55F58-D3A4-4A9B-9596-342420D02FF8</RequestId>
</DeleteDedicatedHostClusterResponse>
```

`JSON` format

```
{
    "RequestId": "11B55F58-D3A4-4A9B-9596-342420D02FF8"
}
```

2.1.2.1.6. Deployment set

2.1.2.1.6.1. CreateDeploymentSet

You can call this operation to create a deployment set in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDeploymentSet	The operation that you want to perform. Set the value to CreateDeploymentSet.
RegionId	String	Yes	cn-qingdao-****	The ID of the region in which to create the deployment set. You can call the DescribeRegions operation to query the most recent region list.
OnUnableToRedeployFailedInstance	String	No	CancelMembershipAndStart	The emergency solution to be used in the following situation: Instances in the deployment set cannot be evenly distributed to different zones due to resource insufficiency after the instances are failed over from faulty physical machines to normal physical machines. Default value: CancelMembershipAndStart. Valid values: • CancelMembershipAndStart: removes the instances from the deployment set and restarts the instances immediately after the failover is complete. • KeepStopped: keeps the instances in the abnormal state and restarts them after ECS resources are replenished.
Description	String	No	This is a description example.	The description of the deployment set. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Parameter	Type	Required	Example	Description
DeploymentSetName	String	No	FinanceDeployment	The name of the deployment set. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
Domain	String	No	null	The deployment domain. Valid values: • Default • Switch Default value: Default
Granularity	String	No	null	The deployment granularity. Valid values: • Host: The minimum scheduling granularity is a physical server. • Rack: The minimum scheduling granularity is a rack. • Switch: The minimum scheduling granularity is a VSwitch. Default value: Host. If Domain is set to Switch, you cannot set Granularity to Switch.
Strategy	String	No	null	The deployment strategy. Valid values: • LooseDispersion: dispersed as much as possible • LooseAggregation: aggregated as much as possible • StrictAggregation: strictly aggregated • StrictDispersion: strictly dispersed Default value: LooseDispersion. If Granularity is set to Switch, you can set Strategy to one of the preceding values. If Granularity is set to Rack or Host, you can set Strategy only to LooseDispersion or StrictDispersion.

Response parameters

Parameter	Type	Example	Description
DeploymentSetId	String	ds-bp1frxuzdg87zh4pzq***	The ID of the deployment set.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateDeploymentSet
&RegionId=cn-qingdao-****
&DeploymentSetName=FinanceDeployment
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDeploymentSetResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
      <DeploymentSetId>ds-bp1frxuzdg87zh4pzq***</DeploymentSetId>
</CreateDeploymentSetResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "DeploymentSetId": "ds-bp1frxuzdg87zh4pzq***"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter RegionId that is mandatory for processing this request is not supplied.	The error message returned because the required RegionId parameter is not specified.
400	InvalidDeploymentSetName.Malformed	Specified deployment set name is not valid.	The error message returned because the specified DeploymentSetName parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidDescription.Malformed	The specified parameter Description is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidDeploymentSetId.NotFound	The specified DeploymentSetId does not exist.	The error message returned because the specified deployment set ID does not exist.
400	MissingParameter	The input parameter DeploymentSetId that is mandatory for processing this request is not supplied.	The error message returned because the required DeploymentSetId parameter is not specified.
400	InvalidParameter.Domain	The specified parameter Domain is not valid.	The error message returned because the specified Domain parameter is invalid.
400	InvalidParameter.Strategy	The specified parameter Strategy is not valid	The error message returned because the specified Strategy parameter is invalid.
400	InvalidParameter.granularity	The specified parameter Granularity is not valid.	The error message returned because the specified Granularity parameter is invalid.
400	DependencyViolation.domain.granularity	The DeploymentSet domain and granularity is violation.	The error message returned because the specified Domain and Granularity parameters do not correspond to each other.
400	DependencyViolation.strategy.granularity	The DeploymentSet strategy and granularity is violation.	The error message returned because the specified Strategy and Granularity parameters do not correspond to each other.
400	DEPLOYMENTSET.QUOTA_FULL	The deploymentSet quota is full	The error message returned because the maximum number of deployment sets has been reached.

2.1.2.1.6.2. ModifyDeploymentSetAttribute

You can call this operation to modify the name and description of a deployment set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDeploymentSetAttribute	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to ModifyDeploymentSetAttribute.
DeploymentSetId	String	Yes	ds-bp1frxuzdg87zh4p****	The ID of the deployment set to be modified.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the deployment set. You can call the DescribeRegions operation to query the most recent region list.
Description	String	No	TestDescription	The new description of the deployment set. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
DeploymentSetName	String	No	DeploymentSetTestName	The new name of the deployment set. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyDeploymentSetAttribute
&RegionId=cn-qingdao-env17-d01
&DeploymentSetId=ds-bp1frxuzdg87zh4p****
&DeploymentSetName=DeploymentSetTestName
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDeploymentSetAttributeResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</ModifyDeploymentSetAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter RegionId that is mandatory for processing this request is not supplied.	The error message returned because the required RegionId parameter is not specified.
400	InvalidDeploymentSetName.Malformed	Specified deployment set name is not valid.	The error message returned because the specified DeploymentSetName parameter is invalid.
400	InvalidDescription.Malformed	The specified parameter Description is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidDeploymentSetId.NotFound	The specified DeploymentSetId does not exist.	The error message returned because the specified DeploymentSetId parameter does not exist.
403	QuotaExceed.DeploymentSetInstanceQuotaFull	instance quota in one deployment set exceeded.	The error message returned because the maximum number of instances in the current deployment set has been reached.

2.1.2.1.6.3. DescribeDeploymentSets

You can call this operation to query the attributes of one or more deployment sets.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDeploymentSets	The operation that you want to perform. Set the value to DescribeDeploymentSets.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the deployment set. You can call the DescribeRegions operation to query the most recent region list.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1
PageSize	Integer	No	10	The number of the page to return . Valid values: 1 to 50 Default value: 10
DeploymentSetIds	String	No	["ds-bp67acfmxazb4ph***", "ds-bp67acfmxazb4pi***", ... "ds-bp67acfmxazb4pj***"]	The IDs of deployment sets. The value can be a JSON array that consists of up to 100 deployment set IDs. Separate multiple deployment set IDs with commas (,).
DeploymentSetName	String	No	FinanceDeployemn****	The name of the deployment set.
Strategy	String	No	Availability	The deployment strategy. Valid values: • LooseDispersion: dispersed as much as possible • LooseAggregation: aggregated as much as possible • StrictAggregation: strictly aggregated • StrictDispersion: strictly dispersed Default value: LooseDispersion. If Granularity is set to Switch, you can set Strategy to one of the preceding values. If Granularity is set to Rack or Host, you can set Strategy only to LooseDispersion or StrictDispersion.

Parameter	Type	Required	Example	Description
NetworkType	String	No	null	The network type of instances in the deployment set. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
Granularity	String	No	null	The deployment granularity. Valid values: • Host: The minimum scheduling granularity is a physical server. • Rack: The minimum scheduling granularity is a rack. • Switch: The minimum scheduling granularity is a VSwitch. Default value: Host
Domain	String	No	null	The deployment domain. Valid values: • Default • Switch Default value: Default

Response parameters

Parameter	Type	Example	Description
DeploymentSets	Array		The collection of details about deployment sets.
DeploymentSet			
CreationTime	String	2017-12-05T22:40:00Z	The time when the deployment set was created.
DeploymentSetDescription	String	FinanceDeptLooseDispersion	The description of the deployment set.
DeploymentSetId	String	ds-deploymentse****	The ID of the deployment set.

Parameter	Type	Example	Description
DeploymentSetName	String	FinanceDept	The name of the deployment set.
DeploymentStrategy	String	Availability	The deployment strategy.
Domain	String	Default	The deployment domain.
Granularity	String	Host	The deployment granularity.
InstanceAmount	Integer	1	The number of instances in the deployment set.
InstanceIds	List	["i-instanc****"]	The IDs of the instances in the deployment set.
Strategy	String	StrictDispersion	The deployment strategy.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RegionId	String	cn-qingdao-env17-d01	The region ID of the deployment set.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	1	The total number of queried deployment sets.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDeploymentSets
&RegionId=cn-qingdao-env17-d01
&PageSize=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDeploymentSetsResponse>
      <DeploymentSets>
            <DeploymentSet>
                  <CreationTime>Tue Jul 23 17:24:33 CST 2019</CreationTime>
                  <Granularity>switch</Granularity>
                  <DeploymentSetDescription>autogen deploymentset, do not delete</Deploymen
tSetDescription>
                  <Domain>default</Domain>
                  <InstanceIds>
                        <InstanceId>i-bp67acfmxazb4ph***</InstanceId>
                        <InstanceId>i-bp67acfmxazb4pi***</InstanceId>
                        <InstanceId>i-bp67acfmxazb4pj***</InstanceId>
                  </InstanceIds>
                  <InstanceAmount>0</InstanceAmount>
                  <Strategy>LooseAggregation</Strategy>
                  <DeploymentSetName>FinanceDeploymen****</DeploymentSetName>
                  <DeploymentStrategy>Availability</DeploymentStrategy>
                  <DeploymentSetId>ds-bp120c8htdzx3869****</DeploymentSetId>
            </DeploymentSet>
      </DeploymentSets>
      <PageNumber>1</PageNumber>
      <TotalCount>5</TotalCount>
      <PageSize>1</PageSize>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <RequestId>FB5EF912-FD87-4CF7-91D9-9204974A63F3</RequestId>
</DescribeDeploymentSetsResponse>
```

`JSON` format

```
{
    "DeploymentSets": {
        "DeploymentSet": [
            {
                "CreationTime": "2017-12-05T22:40:00Z",
                "Granularity": "Switch",
                "DeploymentSetDescription": "autogen deploymentset, do not delete",
                "Domain": "Default",
                "InstanceIds": {
                    "InstanceId": [
                        "i-bp67acfmxazb4ph***",
                        "i-bp67acfmxazb4pi***",
                        "i-bp67acfmxazb4pj***"]
                },
                "InstanceAmount": 0,
                "Strategy": "LooseAggregation",
                "DeploymentSetName": "FinanceDeploymen****",
                "DeploymentStrategy": "Availability",
                "DeploymentSetId": "ds-bp120c8htdzx3869****"
            }
        ]
    },
    "PageNumber": 1,
    "TotalCount": 5,
    "PageSize": 1,
    "RegionId": "cn-qingdao-env17-d01",
    "RequestId": "FB5EF912-FD87-4CF7-91D9-9204974A63F3"
}
```


Error codes

HTTP status code	Error code	Error message	Description
403	InvalidDeploymentSetIds.TooManyInput	The parameter DeploymentSets size should less than 100.	The error message returned because more than 100 deployment sets are specified.

2.1.2.1.6.4. DeleteDeploymentSet

You can call this operation to delete a deployment set.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDeploymentSet	The operation that you want to perform. Set the value to DeleteDeploymentSet.

Parameter	Type	Required	Example	Description
DeploymentSetId	String	Yes	ds-deploymentsetid1	The ID of the deployment set. You cannot delete a deployment set that contains instances.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the deployment set. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteDeploymentSet
&RegionId=cn-qingdao-env17-d01
&DeploymentSetId=ds-bp1frxuzdg87zh4pz***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDeploymentSetResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</DeleteDeploymentSetResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter "DeploymentSetId" that is mandatory for processing this request is not supplied.	The error message returned because the required DeploymentSetId parameter is not specified.
403	DependencyViolation.NotEmpty	There are still instance(s) in the specified DeploymentSetId.	The error message returned because the specified deployment set contains instances and cannot be deleted.
403	DependencyViolation.ReferByHPC	The specified deployment set is still referred by an HPC cluster.	The error message returned because the specified deployment set is associated with other HPC clusters.

2.1.2.1.7. Disks

2.1.2.1.7.1. CreateDisk

You can call this operation to create a data disk such as a basic disk, ultra disk, standard SSD, or enhanced SSD (ESSD).

Description

- By default, the DeleteAutoSnapshot parameter is set to true when a disk is created. This indicates that when the disk is released, the automatic snapshots of the disk are deleted. You can call the ModifyDiskAttribute operation to modify the DeleteAutoSnapshot value.
- You must specify either the Size or SnapshotId parameter. The Size parameter specifies the size of the disk and the SnapshotId parameter specifies the snapshot that is used to create the disk.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDisk	If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to CreateDisk.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the disk. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The ID of the zone in which to create the disk.
SnapshotId	String	No	s-bp67acfmxazb4p****	The ID of the snapshot used to create the disk. If this parameter is specified, the Size parameter is ignored, and the disk is created with the size of the specified snapshot. The snapshots created on or before July 15, 2013 cannot be used to create disks.
DiskName	String	No	test-DiskName	The name of the disk. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
Size	Integer	No	2000	The size of the disk. Unit: GiB. The value of this parameter must be greater than or equal to the size of the specified snapshot. Valid values: • Valid values for a basic disk: 5 to 2000 • Valid values for an ultra disk: 20 to 32768 • Valid values for a standard SSD: 20 to 32768 • Valid values for an ESSD: 20 to 32768
DiskCategory	String	No	cloud_ssd	The category of the data disk. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: ESSD Default value: cloud

Parameter	Type	Required	Example	Description
Description	String	No	This is a description example.	The description of the disk. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.
Encrypted	Boolean	No	false	Specifies whether to encrypt the disk. Default value: false.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
InstanceId	String	No	i-bp1g6zv0ce8ogp12****	The ID of the instance to which to automatically attach the disk after the disk is created. • If this parameter is specified, the specified ResourceGroupId, Tag.N.Key, Tag.N.Value, ClientToken, and KMSKeyId parameters are ignored. • You cannot specify both ZoneId and InstanceId.
Tag.N.value	String	No	TestValue	The value of tag N to be bound to the disk.
Tag.N.key	String	No	TestKey	The key of tag N to be bound to the disk.
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the disk. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Parameter	Type	Required	Example	Description
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the disk. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the disk.
KMSKeyId	String	No	0e478b7a-4262-4802-b8cb-00d3fb40826X	The ID of the KMS key used by the disk.
PerformanceLevel	String	No	PL1	The performance level of the ESSD. Default value: PL1. Valid values: • PL1: A single ESSD can deliver up to 50,000 random read/write IOPS. • PL2: A single ESSD can deliver up to 100,000 random read/write IOPS. • PL3: A single ESSD can deliver up to 1,000,000 random read/write IOPS.
StorageSetId	String	No	ss-bp67acfmxazb4p****	The ID of the storage set.
EncryptAlgorithm	String	No	aes-256	The encryption algorithm. Valid values: • aes-256: AES-256 algorithm • sm4-128: SM4 encryption algorithm
StorageSetPartitionNumber	Integer	No	3	The number of partitions in the storage set.

Response parameters

Parameter	Type	Example	Description
DiskId	String	d-bp131n0q38u3a4zi1****	The ID of the disk.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateDisk
&RegionId=cn-qingdao-env17-d01
&ZoneId=cn-qingdao-env17-amtest11001-a
&SnapshotId=s-bp67acfmxazb4p****
&DiskName=test-DiskName
&Size=2000
&DiskCategory=cloud_ssd
&Description=This is a description example.
&Encrypted=false
&ClientToken=123e4567-e89b-12d3-a456-426655440000
&Tag.1.Key=TestKey
&Tag.1.Value=TestValue
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDiskResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
      <DiskId>d-bp131n0q38u3a4zi1****</DiskId>
</CreateDiskResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E",
    "DiskId": "d-bp131n0q38u3a4zi1****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidSize.ValueNotSupported	The specified parameter Size is not valid.	The error message returned because the specified Size parameter is invalid.
403	InvalidDataDiskCategory.NotSupported	Specified disk category is not supported.	The error message returned because the specified DiskCategory parameter is invalid.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidZoneId.NotFound	The specified zone does not exist.	The error message returned because the specified ZoneId parameter does not exist.
404	InvalidSnapshotId.NotFound	The specified SnapshotId does not exist.	The error message returned because the specified SnapshotId parameter does not exist.
400	InvalidDiskName.Malformed	The specified disk name is wrongly formed.	The error message returned because the specified DiskName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
403	InstanceDiskCategoryLimitExceed	The total size of specified disk category in an instance exceeds.	The error message returned because the total size of disks of the specified category exceeds the maximum capacity that is allowed for an instance.
403	InvalidSnapshot.NotReady	The specified snapshot creation is not completed yet.	The error message returned because the specified snapshot is not created.
403	InvalidSnapshot.TooOld	This operation is forbidden because the specified snapshot is created before 2013-07-15.	The error message returned because the specified snapshot was created on or before July 15, 2013 and cannot be re-initialized.
403	InvalidSnapshot.TooLarge	The capacity of snapshot exceeds 2000GB.	The error message returned because the size of the specified snapshot exceeds 2,000 GB.
403	OperationDenied	The specified snapshot is not allowed to create disk.	The error message returned because the specified snapshot cannot be used to create disks.

HTTP status code	Error code	Error message	Description
403	QuotaExceed.PortableCloudDisk	The quota of portable cloud disk exceeds.	The error message returned because the maximum number of removable disks has been reached.
400	MissingParameter	The input parameter either "SnapshotId" or "Size" should be specified.	The error message returned because neither SnapshotId nor Size is specified.
403	InvalidDiskCategory.ValueUnauthorized	The disk category is not authorized.	The error message returned because you are not authorized to use the specified disk category.
403	InvalidSnapshotId.NotReady	The specified snapshot has not completed yet.	The error message returned because the specified snapshot is being created.
403	InvalidSnapshotId.NotDataDiskSnapshot	The specified snapshot is system disk snapshot.	The error message returned because the specified snapshot is a system disk snapshot.
403	InvalidDiskSize.TooSmall	Specified disk size is less than the size of snapshot.	The error message returned because the specified disk size is smaller than the snapshot size.
403	OperationDenied	The type of the disk does not support the operation.	The error message returned because the specified disk type does not support this operation.
403	InvalidDataDiskCategory.NotSupported	%s	The error message returned because the specified DiskCategory parameter is invalid.
403	InvalidDiskSize.NotSupported	disk size is not supported.	The error message returned because the specified Size parameter is invalid.
400	InvalidDiskCategory.NotSupported	The specified disk category is not support.	The error message returned because the specified DiskCategory parameter is invalid.
400	Account.Arrearage	Your account has an outstanding payment.	The error message returned because you have overdue payments in your account.

HTTP status code	Error code	Error message	Description
400	InvalidDiskCategory.ValueNotSupported	The specified parameter "DiskCategory" is not valid.	The error message returned because the specified DiskCategory parameter is invalid.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.
400	InvalidDataDiskCategory.ValueNotSupported	%s	The error message returned because the specified DiskCategory parameter is invalid.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	RegionUnauthorized	%s	The error message returned because you are not authorized to create disks in the specified region.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	Zone.NotOnSale	%s	The error message returned because the requested resources are unavailable in the specified zone.
400	InvalidDataDiskSize.ValueNotSupported	%s	The error message returned because the specified Size parameter is invalid.
403	InvalidPayMethod	The specified pay method is not valid.	The error message returned because the specified payment method is invalid.

HTTP status code	Error code	Error message	Description
400	OperationDenied	The specified Zone is not available or not authorized.	The error message returned because the specified zone is unavailable or you are not authorized to access it.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
403	InvalidDiskCategory.NotSupported	The specified disk category is not supported.	The error message returned because the specified DiskCategory parameter is invalid.
403	InvalidDiskSize.NotSupported	The specified disk size is not supported.	The error message returned because the specified Size parameter is invalid.
400	InvalidDiskSize.NotSupported	The specified parameter size is not valid.	The error message returned because the specified Size parameter is invalid.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage disks.
400	InvalidDiskSizeOrCategory	The specified disk category or size is invalid.	The error message returned because the specified DiskCategory or Size parameter is invalid.
400	InvalidParameter.EncryptedIllegal	%s	The error message returned because the specified parameter is invalid. Check whether your encryption operation is valid.
400	InvalidParameter.EncryptedNotSupported	%s	The error message returned because the specified parameter is invalid and your encryption operation is not supported.
400	EncryptedOption.Conflict	%s	The error message returned because encrypted disks do not support the parameter.
400	InvalidParameter.Encrypted.KmsNotEnabled	The encrypted disk need enable KMS	The error message returned because KMS has not been activated.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	QuotaExceed.PostPaidDisk	Living postPaid disks quota exceeded.	The error message returned because the maximum number of pay-as-you-go disks has been reached.
403	InvalidRegion.NotSupport	The specified region does not support byok.	The error message returned because the bring your own key (BYOK) feature is not supported in this region.
403	UserNotInTheWhiteList	The user is not in byok white list.	The error message returned because you are not in the BYOK whitelist. Try again when you are in the whitelist.
400	InvalidParameter.EncryptedIllegal	The specified parameter Encrypted must be true when kmsKeyId is not empty.	The error message returned because the encryption feature is not enabled after the KMSKeyId parameter is specified.
404	InvalidParameter.KMSKeyId.NotFound	The specified KMSKeyId does not exist.	The error message returned because the specified KMSKeyId parameter does not exist.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
403	SecurityRisk.3DVerification	We have detected a security risk with your default credit or debit card. Please proceed with verification via the link in your email.	The error message returned because risks are detected in your default credit card or debit card. Use the link in the email for verification.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
404	InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidStatus.Upgrading	The instance is upgrading; please try again later.	The error message returned because the specified instance is being upgraded. Try again later.
400	InvalidPerformanceLevel.Malformed	The specified parameter PerformanceLevel is not valid.	The error message returned because the specified PerformanceLevel parameter is invalid.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.

2.1.2.1.7.2. DescribeDisks

You can call this operation to query one or more Elastic Block Storage (EBS) devices that you have created, including cloud disks and local disks.

Description

- You can specify multiple request parameters such as `RegionId`, `ZoneId`, `DiskIds`, and `InstanceId` to be queried. Specified parameters have logical AND relations. Only the specified parameters are included in the filter conditions.
- The `DiskIds` value is a JSON array. If DiskIds is not specified, it is not used as a filter condition. If `DiskIds` is set to an empty JSON array, it is regarded as a valid filter condition and an empty result is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDisks	The operation that you want to perform. Set the value to DescribeDisks.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the disk. You can call the DescribeRegions operation to query the most recent region list.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The zone ID of the disk.
DiskIds	String	No	["d-bp67acfmxazb4p****", "d-bp67acfmxazb4p****", ... "d-bp67acfmxazb4p****"]	The IDs of disks. The value is a JSON array that consists of up to 100 disk IDs. Separate multiple disk IDs with commas (,).
InstanceId	String	No	i-bp67acfmxazb4p****	The ID of the instance to which the disk is attached.
DiskType	String	No	all	The type of the disk. Valid values: • all: system disk and data disk • system: system disk • data: data disk Default value: all.
Category	String	No	all	The category of the disk. Valid values: • all: all disk categories • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: enhanced SSD (ESSD) • local_ssd_pro: I/O-intensive local disk • local_hdd_pro: throughput-intensive local disk • ephemeral: retired local disk • ephemeral_ssd: retired local SSD Default value: all.

Parameter	Type	Required	Example	Description
Status	String	No	All	The status of the disk. Valid values: • In_use • Available • Attaching • Detaching • Creating • ReIniting • All Default value: All.
SnapshotId	String	No	s-bp67acfmxazb4p****	The ID of the snapshot used to create the disk.
Portable	Boolean	No	false	Specifies whether the disk is removable. Valid values: • true: The disk is removable. A removable disk can exist independently and can be attached to or detached from an instance within the same zone. • false: The disk is not removable. A disk that is not removable cannot exist independently or be detached from one instance and then attached to another instance within the same zone. To attach or detach a disk, make sure that the disk is removable. When basic disks, ultra disks, and standard SSDs are used as system disks, they are not removable. This attribute cannot be modified.
DeleteWithInstance	Boolean	No	false	Specifies whether the disk is released when its associated instance is released. Valid values: • true: The disk is released when its associated instance is released. • false: The disk is not released but is retained when its attached instance is released. Default value: false.

Parameter	Type	Required	Example	Description
DeleteAutoSnapshot	Boolean	No	false	Specifies whether the automatic snapshots of the disk are deleted when the disk is released. Default value: false.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.
NextToken	String	No	AAAAAdDWBF2****	The query token. Set the value to the `NextToken` value returned in the last call to the DescribeDisks operation.
MaxResults	Integer	No	50	The maximum number of entries to return on each page. Valid values: 1 to 500. Default value: 10.
DiskName	String	No	test-DiskName	The name of the disk.
AutoSnapshotPolicyId	String	No	sp-m5e2w2jutw8bv31a****	The ID of the automatic snapshot policy applied to the disk.
EnableAutomatedSnapshotPolicy	Boolean	No	false	Specifies whether to query disks that have automatic snapshot policies applied. Default value: false.
Filter.1.Key	String	No	CreationStartTime	The key of filter 1 used to query resources. Set the value to CreationStartTime.

Parameter	Type	Required	Example	Description
Filter.2.Key	String	No	CreationEndTime	The key of filter 2 used to query resources. Set the value to CreationEndTime.
Filter.1.Value	String	No	2017-12-05T22:40:00Z	The value of filter 1 used to query resources. Set the value to the beginning of the time range to query.
Filter.2.Value	String	No	2017-12-06T22:40:00Z	The value of filter 2 used to query resources. Set the value to the end of the time range to query.
Tag.N.Key	String	No	TestKey	The key of tag N of the disk. Valid values of N: 1 to 20.
Tag.N.Value	String	No	TestValue	The value of tag N of the disk. Valid values of N: 1 to 20.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the disk belongs.
EnableShared	Boolean	No	false	Specifies whether the disk is a Shared Block Storage device.
Encrypted	Boolean	No	false	Specifies whether to query only encrypted disks. Default value: false.
AdditionalAttributes.N	RepeatList	No	null	Attribute N of the disk. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Valid values: • true: The validity of the request is checked but the request is not made. The system checks whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the `DryRunOperation` error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made. Default value: false.
KMSKeyId	String	No	0e478b7a-4262-4802-b8cb-00d3fb408***	The ID of the KMS key used by the disk.

Response parameters

Parameter	Type	Example	Description
Disks	Array of Disk		Details about the disks.
Disk			
AttachedTime	String	2018-01-01T01:04:22Z	The time when the disk was attached. The time follows the ISO 8601 standard in the yyyy-MM-ddThh:mmZ format. The time is displayed in UTC. This parameter is valid only when the value of `Status` is `Available`.
AutoSnapshotPolicyId	String	sp-bp67acfmxazb4p****	The ID of the automatic snapshot policy applied to the disk.
BdfId	String	test	**Note** This parameter is not supported.

Parameter	Type	Example	Description
Category	String	cloud_ssd	The category of the disk. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: ESSD • local_ssd_pro: I/O-intensive local disk • local_hdd_pro: throughput-intensive local disk • ephemeral: retired local disk • ephemeral_ssd: retired local SSD
CreationTime	String	2018-01-01T01:01:22Z	The time when the disk was created.
DeleteAutoSnapshot	Boolean	false	Indicates whether the automatic snapshots of the disk are deleted when the disk is released. Valid values: • true: The automatic snapshots of the disk are deleted when the disk is released. • false: The automatic snapshots of the disk are retained when it is released. The snapshots created by calling the CreateSnapshot operation or by using the ECS console are not affected by this parameter.
DeleteWithInstance	Boolean	true	Indicates whether the disk is released when its associated instance is released. Valid values: • true: The disk is released when its associated instance is released. • false: The disk is retained when its associated instance is released.
Description	String	This is a description example.	The description of the disk.
DetachedTime	String	2018-01-08T01:01:22Z	The time when the disk was detached. This parameter is valid only when the value of `Status` is `Available`.

Parameter	Type	Example	Description
Device	String	/dev/xvdb	The device name of the disk on its associated instance. Example: /dev/xvdb. This parameter has a value only when the value of `Status` is `In_use`. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
DiskChargeType	String	PostPaid	**Note** This parameter is not supported.
DiskId	String	d-bp18um4r4f2fve24****	The ID of the disk.
DiskName	String	test-DiskName	The name of the disk.
EnableAutoSnapshot	Boolean	false	**Note** This parameter is not supported.
EnableAutomatedSnapshotPolicy	Boolean	false	Indicates whether the disk has an automatic snapshot policy applied.
Encrypted	Boolean	false	Indicates whether the disk was encrypted.
ExpiredTime	String	2018-01-10T01:01:22Z	**Note** This parameter is not supported.
IOPS	Integer	4000	The number of input/output operations per second (IOPS).
IOPSRead	Integer	2000	The number of I/O reads per second.
IOPSWrite	Integer	2000	The number of I/O writes per second.

Parameter	Type	Example	Description
ImageId	String	m-bp13aqm171qynt3*****	The ID of the image used to create the instance. This parameter is empty unless the disk was created from an image. The value of this parameter remains unchanged throughout the lifecycle of the disk.
InstanceId	String	i-bp1j4i2jdf3owlhe*****	The ID of the instance to which the disk is attached. This parameter has a value only when the value of `Status` is `In_use`.
KMSKeyId	String	0e478b7a-4262-4802-b8cb-00d3fb40****	The ID of the KMS key used by the disk.
MountInstanceNum	Integer	1	The number of instances to which the Shared Block Storage device is attached.
MountInstances	Array of MountInstance		The attaching information of the disk.
MountInstance			
AttachedTime	String	2017-12-05T2340:00Z	The time when the disk was attached. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
Device	String	/dev/xvda	The mount point of the disk.
InstanceId	String	i-bp1j4i2jdf3owlhe*****	The ID of the instance to which the disk is attached.
OperationLocks	Array of OperationLock		The reasons why the disk was locked.
OperationLock			
LockReason	String	security	The security reason why the disk was locked.

Parameter	Type	Example	Description
PerformanceLevel	String	PL2	The performance level of the ESSD. Valid values: • PL1: A single enhanced SSD can deliver up to 50,000 random read/write IOPS. • PL2: A single enhanced SSD can deliver up to 100,000 random read/write IOPS. • PL3: A single ESSD can deliver up to 1,000,000 random read/write IOPS.
Portable	Boolean	false	Indicates whether the disk is removable.
ProductCode	String	test	Note This parameter is not supported.
RegionId	String	cn-qingdao-env17-d01	The region ID of the disk.
ResourceGroupId	String	rg-bp67acfmxazb4p****	The ID of the resource group to which the disk belongs.
SerialNumber	String	bp18um4r4f2fve2****	The serial number of the disk.
Size	Integer	2000	The size of the disk. Unit: GiB.
SourceSnapshotId	String	s-bp67acfmxazb4p****	The ID of the snapshot used to create the disk. This parameter is empty unless the disk was created from a snapshot. The value of this parameter remains unchanged throughout the lifecycle of the disk.
Status	String	Available	The status of the disk. Valid values: • In_use • Available • Attaching • Detaching • Creating • ReIniting

Parameter	Type	Example	Description
StorageSetId	String	ss-i-bp1j4i2jdf3owlhe****	Note This parameter is not supported.
StorageSetPartitionNumber	Integer	11	Note This parameter is not supported.
Tags	Array of Tag		The tags of the disk.
Tag			
TagKey	String	TestKey	The tag key of the disk.
TagValue	String	TestValue	The tag value of the disk.
Type	String	data	The type of the disk. Valid values: • system: system disk • data: data disk
ZoneId	String	cn-qingdao-env17-amtest11001-a	The zone ID of the disk.
NextToken	String	AAAAAdDWBF2****	The query token returned in this call.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	76	The total number of entries returned.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDisks
&RegionId=cn-qingdao-env17-d01
&PageNumber=1
&PageSize=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDisksResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>76</TotalCount>
      <PageSize>1</PageSize>
      <RequestId>C74847CB-9B69-4360-9969-3595F2B6B9C1</RequestId>
      <Disks>
            <Disk>
                  <ImageId>centos_7_06_64_20G_alibase_20190711.vhd</ImageId>
                  <Device>/dev/xvda</Device>
                  <DetachedTime></DetachedTime>
                  <Type>system</Type>
                  <InstanceId>i-bp1j4i2jdf3owlhe****</InstanceId>
                  <Encrypted>false</Encrypted>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
                  <EnableAutoSnapshot>true</EnableAutoSnapshot>
                  <AttachedTime>2019-11-11T08:35:32Z</AttachedTime>
                  <PerformanceLevel></PerformanceLevel>
                  <SourceSnapshotId></SourceSnapshotId>
                  <DeleteAutoSnapshot>false</DeleteAutoSnapshot>
                  <KMSKeyId></KMSKeyId>
                  <Size>40</Size>
                  <Description></Description>
                  <BdfId></BdfId>
                  <ProductCode></ProductCode>
                  <Portable>false</Portable>
                  <EnableAutomatedSnapshotPolicy>false</EnableAutomatedSnapshotPolicy>
                  <ResourceGroupId></ResourceGroupId>
                  <DiskName></DiskName>
                  <StorageSetId></StorageSetId>
                  <AutoSnapshotPolicyId></AutoSnapshotPolicyId>
                  <CreationTime>2019-11-11T08:35:29Z</CreationTime>
                  <MountInstances>
            </MountInstances>
                  <Status>In_use</Status>
                  <Tags>
                        <Tag>
                              <TagValue>TestValue</TagValue>
                              <TagKey>TestKey</TagKey>
                        </Tag>
                  </Tags>
                  <Category>cloud_efficiency</Category>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <DeleteWithInstance>true</DeleteWithInstance>
                  <OperationLocks>
            </OperationLocks>
                  <DiskId>d-bp18um4r4f2fve24****</DiskId>
            </Disk>
      </Disks>
</DescribeDisksResponse>
```

`JSON` format

```
{
```

```
    "PageNumber": 1,
    "TotalCount": 76,
    "PageSize": 1,
    "RequestId": "C74847CB-9B69-4360-9969-3595F2B6B9C1",
    "Disks": {
        "Disk": [
            {
                "ImageId": "centos_7_06_64_20G_alibase_20190711.vhd",
                "Device": "/dev/xvda",
                "DetachedTime": "",
                "Type": "system",
                "InstanceId": "i-bp1j4i2jdf3owlhe****",
                "Encrypted": false,
                "ZoneId": "cn-qingdao-env17-amtest11001-a",
                "EnableAutoSnapshot": true,
                "AttachedTime": "2019-11-11T08:35:32Z",
                "PerformanceLevel": "",
                "SourceSnapshotId": "",
                "DeleteAutoSnapshot": false,
                "KMSKeyId": "",
                "Size": 40,
                "Description": "",
                "BdfId": "",
                "ProductCode": "",
                "Portable": false,
                "EnableAutomatedSnapshotPolicy": false,
                "ResourceGroupId": "",
                "DiskName": "",
                "StorageSetId": "",
                "AutoSnapshotPolicyId": "",
                "CreationTime": "2019-11-11T08:35:29Z",
                "MountInstances": {
                    "MountInstance": []
                },
                "Status": "In_use",
                "Tags": {
                    "Tag": [
                        {
                            "TagValue": "TestValue",
                            "TagKey": "TestKey"
                        }
                    ]
                },
                "Category": "cloud_efficiency",
                "RegionId": "cn-qingdao-env17-d01",
                "DeleteWithInstance": true,
                "OperationLocks": {
                    "OperationLock": []
                },
                "DiskId": "d-bp18um4r4f2fve24****"
            }
        ]
    }
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidDiskType.ValueNotSupported	The specified disk type is not supported.	The error message returned because the specified DiskType parameter is invalid.
400	InvalidCategory.ValueNotSupported	The specified disk category is not supported.	The error message returned because the specified Category parameter is invalid.
400	InvalidStatus.ValueNotSupported	The specified disk status is not supported.	The error message returned because the operation is not supported while the disk is in the current state.
403	InvalidDiskIds.Malformed	The amount of specified disk Ids exceeds the limit.	The error message returned because the specified DiskIds parameter is invalid.
404	InvalidDiskChargeType.NotFound	The DiskChargeType does not exist in our records	The error message returned because the specified DiskChargeType parameter does not exist.
404	InvalidLockReason.NotFound	The specified LockReason is not found	The error message returned because the specified LockReason parameter does not exist.
404	InvalidFilterKey.NotFound		The error message returned because the specified start time or end time is invalid.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
400	InvalidRegion.NotFound	The specified parameter RegionId is not valid.	The error message returned because the specified RegionId parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HTTP status code	Error code	Error message	Description
400	InvalidZoneId.NotFound	The zoneId provided does not exist in our records.	The error message returned because the specified ZoneId parameter does not exist.
400	MissingParamter.RegionId	The regionId should not be null.	The error message returned because the RegionId parameter is not specified.
400	InvalidParameter.DiskIds	The specified parameter diskIds is not valid.	The error message returned because the specified DiskIds parameter is invalid.
400	IncompleteParamter	Some fields can not be null in this request.	The error message returned because a required parameter is not specified.
400	InvalidParamter	Some parameters are invalid in this request.	The error message returned because the request contains invalid parameters.
400	InvalidSnapshot.NotFound	The specified parameter SnapshotId is not valid.	The error message returned because the specified SnapshotId parameter is invalid.
403	UserNotInTheWhiteList	The user is not in volume white list.	The error message returned because you are not authorized to manage Shared Block Storage devices. Submit a ticket to apply for the authorization.
404	InvalidDiskIds.ValueNotSupported	The specified parameter "DiskIds" is not supported.	The error message returned because the specified DiskIds parameter is invalid.

2.1.2.1.7.3. AttachDisk

You can call this operation to attach a system disk or data disk to an instance. The instance and the disk must be in the same zone.

Description

When you call this operation, take note of the following items:

- The disk to be attached must be in the **Unattached** (`Available`) state.
- When you attach a data disk to an instance:

  The instance must be in the **Running** (`Running`) or **Stopped** (`Stopped`) state.
- When you attach a system disk to an instance:
  - The instance must be the same instance from which the system disk was detached.

- The instance must be in the **Stopped** (`Stopped`) state.
- Logon credentials must be configured.

- If the API response contains `{"OperationLocks": {"LockReason" : "security"}}` when you query information of an instance, the instance is locked for security reasons and all operations are prohibited on it.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AttachDisk	The operation that you want to perform. Set the value to AttachDisk.
DiskId	String	Yes	d-bp198f7xn673w2rw****	The ID of the disk to be attached. The disk (`DiskId`) and the instance (`InstanceId`) must belong to the same zone. **Note** For more information about restrictions on attaching a data disk and system disk, see the "Description" section of this topic.
InstanceId	String	Yes	i-bp1ahcvgu9z55pk7****	The ID of the instance to which to attach the disk.
Device	String	No	testName	The device name of the disk. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.

Parameter	Type	Required	Example	Description
DeleteWithInstance	Boolean	No	false	Specifies whether to release the disk along with its attached instance. • true: releases the disk when the instance is released. • false: does not release the disk when the instance is released. Default value: false **Note** If `OperationLocks` in the DescribeInstances response contains `"LockReason" : "security"` for the instance to which the disk is attached, the instance is locked for security reasons. In this case, the disk is released along with the instance even if `DeleteWithInstance` is set to `false`.
Bootable	Boolean	No	false	Specifies whether to attach the disk as a system disk. Default value: false **Note** You can set `Bootable` to true only when the target instance is in the No System Disk state.

Parameter	Type	Required	Example	Description
Password	String	No	EcsV587!	The password set when you attach the system disk. The password is applicable only to the administrator and root users. The password must be 8 to 30 characters in length. It must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `( ) ` ~ ! @ # $ % ^ & * - _ + = | { } [ ] : ; ' < > , . ? /` For Windows instances, the password cannot start with a forward slash (/). **Note** For security reasons, we recommend that you use HTTPS to send requests if the `Password` parameter is specified.
KeyPairName	String	No	test-KeyPairName	The name of the SSH key pair that you bind to the Linux instance when you attach the system disk. • Windows instances do not support logons using SSH key pairs. The `Password` parameter takes effect even if the KeyPairName parameter is specified. • For Linux instances, the username and password logon method is disabled by default.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AttachDisk
&DiskId=d-bp198f7xn673w2rw****
&InstanceId=i-bp1ahcvgu9z55pk7****
&DeleteWithInstance=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AttachDiskResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</AttachDiskResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the DiskId parameter is correct.
400	InvalidDevice.Malformed	The specified device is not valid.	The error message returned because the specified Device parameter does not exist.
403	InstanceDiskLimitExceeded	The amount of the disk on instance in question reach its limits.	The error message returned because the maximum number of disks that can be attached to the specified instance has been reached.
403	InvalidDevice.InUse	The specified device has been occupied.	The error message returned because the specified device already has a disk attached.

HTTP status code	Error code	Error message	Description
403	IncorrectDiskStatus	The operation is not supported in this status.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payments for it.
403	DiskNotPortable	The specified disk is not a portable disk.	The error message returned because the specified disk is not removable.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.
403	ResourcesNotInSameZone	The specified instance and disk are not in the same zone.	The error message returned because the specified instance and disk are not in the same zone.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	DiskInArrears	The specified operation is denied as your disk owing fee.	The error message returned because you have an overdue payment for the specified disk.
400	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	DiskError	IncorrectDiskStatus.	The error message returned because the status of the specified disk is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	InvalidParameter	The input parameter is mandatory for processing this request is empty.	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	DiskId.ValueNotSupported	The specified parameter diskid is not supported.	The error message returned because the category of the specified Block Storage device does not support this operation.
403	DiskId.StatusNotSupported	The specified disk status is not supported.	The error message returned because the operation is not supported while the disk is in the current state.
404	InvalidDisk.InUse	The specified disk has been occupied.	The error message returned because the specified disk is in use.
404	DiskAttachedNumberExceeded	The attaching times of the specified disk exceeded.	The error message returned because the maximum number of times that the disk can be attached has been reached.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage the disk.
400	InvalidRegionId.MalFormed	The specified RegionId is not valid	The error message returned because the specified RegionId parameter is invalid.
400	InvalidOperation.InstanceTypeNotSupport	The instance type of the specified instance does not support hot attach disk.	The error message returned because the instance to which the disk is attached does not support the hot swapping of disks.
400	DiskCategory.OperationNotSupported	The operation is not supported to the specified disk due to its disk category	The error message returned because the disk category does not support the operation.
400	InvalidOperation.InstanceTypeNotSupport	The specified disk which has kms key should only attach to ioOptimized instance.	The error message returned because the specified instance is not supported. You can set KMS keys only for I/O optimized instances.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	InvalidParameter.AllEmpty	%s	The error message returned because no parameters are specified. Specify required parameters.

2.1.2.1.7.4. DetachDisk

You can call this operation to detach a data disk or system disk from an instance.

Description

When you call this operation, take note of the following items:

- The disk to be detached must be in the Running (`In_Use`) state.
- The instance from which you want to detach a data disk must be in the **Running** (`Running`) or **Stopped** (`Stopped`) state.
- The instance from which you want to detach the system disk must be in the **Stopped** (`Stopped`) state.
- If the API response contains `{"OperationLocks":` `{"LockReason" : "security"}}` when you query information of an instance, the instance is locked for security reasons and all operations are prohibited on it.
- DetachDisk is an asynchronous operation. It takes about one minute for the disk to be detached after this operation is called.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DetachDisk	The operation that you want to perform. Set the value to DetachDisk.
DiskId	String	Yes	d-bp67acfmxazb4p****	The ID of the disk to be detached.
InstanceId	String	Yes	i-bp67acfmxazb4p****	The ID of the instance from which the disk is to be detached.

Parameter	Type	Required	Example	Description
DeleteWithInstance	Boolean	No	false	The automatic release attribute of the system disk. That is, this parameter specifies whether the system disk is released when its attached instance is released. Valid values: • true: The system disk is released when its attached instance is released. • false: The system disk is not released but is retained when its attached instance is released. Default value: true. **Note** If a data disk is to be detached, the default value is `false`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DetachDisk
&DiskId=d-bp67acfmxazb4p****
&InstanceId=i-bp67acfmxazb4p****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachDiskResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</DetachDiskResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payment for it.
403	DiskNotPortable	The specified disk is not a portable disk.	The error message returned because the specified disk is not removable.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.
403	DependencyViolation	The specified disk has not been attached on the specified instance.	The error message returned because the operation is not supported while the resource has other dependencies. For example, the specified disk is not attached to the specified instance, or the specified security group cannot be deleted while it contains instances.
403	DiskTypeViolation	The specified disk is a system disk and cannot support the operation.	The error message returned because the specified disk is a system disk and cannot be detached from the associated instance.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	InvalidParameter	The input parameter is mandatory for processing this request is empty.	The error message returned because a required parameter is not specified.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage the disk.
400	InvalidRegionId.Malformed	The specified RegionId is not valid	The error message returned because the specified region ID is invalid.
404	InvalidDisk.AlreadyDetached	The specified disk has been detached.	The error message returned because the specified disk has been detached.
400	InvalidOperation.InstanceTypeNotSupport	The instance type of the specified instance does not support hot detach disk.	The error message returned because the instance to which the disk is attached does not support the hot swapping of disks.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.7.5. ModifyDiskAttribute

You can call this operation to modify the attributes of one or more Block Storage devices, including their names, descriptions, and whether they are released along with their attached instances.

Description

If you set DeleteWithInstance to false for a disk and the instance to which the disk is attached is locked for security reasons, the DeleteWithInstance parameter will be ignored and the disk will be released along with the instance. (If the value of `LockReason` is security in OperationLocks of the API response when you query information of an instance, the instance is locked for security reasons.)

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDiskAttribute	The operation that you want to perform. Set the value to ModifyDiskAttribute.
DiskId	String	No	d-bp198f7xn673w2rw****	The ID of the disk to be modified. **Note** You can specify either `DiskId` or `DiskIds.N` but you cannot specify both of them.
DiskIds.N	RepeatList	No	d-bp198f7xn673w2rw****	The ID of disk N to be modified. Valid values of N: 0 to 100. **Note** You can specify either `DiskId` or `DiskIds.N` but you cannot specify both of them.
DiskName	String	No	test-DiskName	The name of the disk. The name must be 2 to 128 characters in length. and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
Description	String	No	This is a description example.	The description of the disk. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
DeleteWithInstance	Boolean	No	false	Specifies whether the disk is released with the instance. This parameter is empty by default, which indicates that the current value remains unchanged. An error will be returned if you set this parameter to false in the following cases: • The specified disk is a local disk. • The specified disk is a basic disk and is not removable.

Parameter	Type	Required	Example	Description
DeleteAutoSnapshot	Boolean	No	false	Specifies whether the automatic snapshots of the disk are deleted when it is released. This parameter is empty by default, which indicates that the current value remains unchanged.
EnableAutoSnapshot	Boolean	No	true	Specifies whether to apply a created automatic snapshot policy to the disk. This parameter is empty by default, which indicates that the current value remains unchanged.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyDiskAttribute
&DiskId=d-bp198f7xn673w2rw****
&DiskName=test-DiskName
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDiskAttributeResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</ModifyDiskAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified disk does not exist. Check whether the disk ID is correct.
400	InvalidDiskName.Malformed	The specified disk name is wrongly formed.	The error message returned because the specified DiskName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
404	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	NoAttributeToModify	No attribute to be modified in this request.	The error message returned because no attributes of the specified disk are modified.
403	QuotaExceed.Snapshot	The snapshot quota exceeds.	The error message returned because the maximum number of snapshots has been reached. To store new snapshots, delete snapshots that are no longer needed.
403	DiskNotPortable	The specified disk is not a portable disk.	The error message returned because the specified disk is not removable.
403	IncorrectDiskStatus	The operation is not supported in this status.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payment for it.
400	IncompleteParamter	Some fields can not be null in this request.	The error message returned because some required parameters are not specified.

HTTP status code	Error code	Error message	Description
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage the disk.
400	InvalidRegionId.Malformed	The specified RegionId is not valid	The error message returned because the specified region ID is invalid.
404	InvalidInstanceId.NotFound	Specified attached instance does not exist.	The error message returned because the specified instance ID does not exist.

2.1.2.1.7.6. ReInitDisk

You can call this operation to re-initialize a disk.

Description

When you call this operation, take note of the following items:

- The disk to be re-initialized must be in the **Running** (In Use) state, and the instance to which the disk is attached must be in the **Stopped** (Stopped) state.
- If the instance has never been started since it was created, the disks attached to it cannot be re-initialized.
- When a system disk is re-initialized, it is restored to the state of the image from which it was created. If the image has been deleted, the disk cannot be re-initialized.
- When a separately created data disk is re-initialized, it is restored to an empty data disk.
- When a data disk that was created from a snapshot is re-initialized, the disk is restored to the state of the snapshot. If the snapshot has been deleted, the disk cannot be re-initialized and an error will be returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReInitDisk	The operation that you want to perform. Set the value to ReInitDisk.
DiskId	String	Yes	d-bp67acfmxazb4p****	The ID of the disk.

Parameter	Type	Required	Example	Description
Password	String	No	EcsV587!	Specifies whether to reset the password of the instance when you re-initialize its system disk. The password must be 8 to 30 characters in length. It must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `( ) ` ~ ! @ # $ % ^ & * - _ + = | { } [ ] : ; ' < > , . ? /` For Windows instances, the password cannot start with a forward slash (/). **Note** For security reasons, we recommend that you use HTTPS to send requests if the `Password` parameter is specified.
KeyPairName	String	No	test-KeyPairName	The name of the key pair. **Note** The parameter is applicable only to Linux instances. You can bind an SSH key pair to an instance as the logon credential when you re-initialize its system disk. After the SSH key pair is bound, the username and password logon method is disabled for the instance.
AutoStartInstance	Boolean	No	true	Specifies whether to automatically start the instance after the disk is re-initialized. Default value: false.

Parameter	Type	Required	Example	Description
SecurityEnhancementStrategy	String	No	Active	Specifies whether to use Security Center after the system disk is re-initialized. Valid values: • Active: Security Center is used after the system disk is re-initialized. This value is applicable only to public images. • Deactive: Security Center is not used after the system disk is re-initialized. This value is applicable to all images. Default value: Deactive.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ReInitDisk
&DiskId=d-bp67acfmxazb4p****
&KeyPairName=test-KeyPairName
&AutoStartInstance=true
&SecurityEnhancementStrategy=Active
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReInitDiskResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ReInitDiskResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payment for it.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.
403	InvalidSnapshot.TooOld	The disk is created from a snapshotId made before 2013-07-15, it cannot be re-initiated the specified disk any more since the detached first time.	The error message returned because snapshots created before July 15, 2013 do not support this operation.
403	OperationDenied	The snapshot which is used to create the specified disk has been deleted.	The error message returned because the snapshot used to create the specified disk does not exist.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	DiskCreatingSnapshot	The operation is denied due to a snapshot of the specified disk is not completed yet.	The error message returned because a snapshot is being created for the specified disk.
403	InvalidSourceSnapshot	The snapshot which is used to create the specified disk has been deleted.	The error message returned because the snapshot used to create the specified disk has been deleted.

HTTP status code	Error code	Error message	Description
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
403	SharedImageDeleted	The specified image by others shared is deleted.	The error message returned because the specified shared image has been deleted.
400	InvalidPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.
400	DiskCategory.OperationNotSupported	The operation is not supported to the specified disk due to its disk category	The error message returned because the disk category does not support the operation.
400	InvalidKeyPairName.NotFound	The specified KeyPairName does not exist.	The error message returned because the specified KeyPairName parameter does not exist.
400	DependencyViolation.IoOptimize	The specified parameter InstanceId is not valid.	The error message returned because the specified instance ID is invalid.
403	UserNotInTheWhiteList	The user is not in volume white list.	The error message returned because you are not authorized to manage the Shared Block Storage device.
400	InvalidRegionId.Malformed	The specified RegionId is not valid	The error message returned because the specified region ID is invalid.
404	InvalidDiskId.OperationNotSupported	The operation is not supported due to image not exist.	The error message returned because the specified image does not exist.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.7.7. ResetDisk

You can call this operation to restore a disk to a specific point in time from a snapshot of the disk.

Description

When you call this operation, take note of the following items:

- The disk to be restored must be in the Running (In_Use) state.
- The instance to which the disk is attached must be in the Stopped (Stopped) state.
- The snapshot specified by the SnapshotId parameter must be created from the disk specified by the DiskId parameter.
- If the DescribeInstances response includes `{"OperationLocks": {"LockReason" : "security"}}` for an instance, the instance is locked for security reasons and all operations are prohibited on it.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetDisk	The operation that you want to perform. Set the value to ResetDisk.
DiskId	String	Yes	d-bp198f7xn673w2rw****	The ID of the disk to be restored.
SnapshotId	String	Yes	s-bp1btgnlb4licd41****	The ID of the snapshot that is used to restore the disk.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ResetDisk
&DiskId=d-bp198f7xn673w2rw****
&SnapshotId=s-bp1btgnlb4licd41****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ResetDiskResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ResetDiskResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.
404	Disk.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist.
404	InvalidSnapshotId.NotFound	The specified SnapshotId does not exist.	The error message returned because the specified SnapshotId parameter does not exist.
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payment for it.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.
403	InvalidParameter.Mismatch	The specified snapshot is not created from the specified disk.	The error message returned because the specified snapshot was not created from the specified disk.

HTTP status code	Error code	Error message	Description
403	InvalidSnapshot.TooOld	The snapshotId is created before 2013-07-15, it cannot be restored since the first time the disk detached.	The error message returned because snapshots created before July 15, 2013 do not support this operation.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	OperationDenied	The specified snapshot dees not support ResetDisk.	The error message returned because the specified snapshot does not support the ResetDisk operation.
403	InvalidSnapshotId.NotReady	The specified snapshot has not completed yet.	The error message returned because the specified snapshot is being created.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	DiskCategory.OperationNotSupported	The operation is not supported to the specified disk due to its disk category	The error message returned because the disk category does not support the operation.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified instance ID does not exist. Check whether the instance ID is correct.
403	Operation.Conflict	The operation may conflicts with others.	The error message returned because the operation conflicts with other operations.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage the disk.

HTTP status code	Error code	Error message	Description
400	InvalidRegionId.MalFormed	The specified RegionId is not valid	The error message returned because the specified RegionId parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.

2.1.2.1.7.8. ReplaceSystemDisk

You can call this operation to replace the system disk or operating system of an ECS instance. After the system disk is replaced, the ID of the system disk changes and the original disk is released.

Description

When you call this operation, take note of the following items:

- You cannot change the category of the system disk.
- The instance to which the system disk to be replaced is attached must be in the Stopped (Stopped) state.
- If OperationLocks in the DescribeInstances response contains "LockReason" : "security" for an instance, the instance is locked for security reasons and cannot be restarted.
- You can use the SystemDisk.Size parameter to specify the capacity of the new system disk.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReplaceSystemDisk	The operation that you want to perform. Set the value to ReplaceSystemDisk.
InstanceId	String	Yes	i-bp67acfmxazb4p****	The ID of the instance.
ImageId	String	No	m-bp67acfmxazb4p****	The ID of the image to be used to replace the system disk.

Parameter	Type	Required	Example	Description
SystemDisk.Size	Integer	No	80	The capacity of the new system disk. Unit: GiB. Valid values: Max{20, the size of the image specified by ImageId} to 500. Default value: 40 or the size of the specified image, whichever is greater.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
UseAdditionalService	Boolean	No	true	Specifies whether to use the virtual machine system configuration provided by Apsara Stack (Windows: NTP and KMS. Linux: NTP and YUM). **Note** This parameter takes effect only when you attach a system disk, whose device name is /dev/xvda.

Parameter	Type	Required	Example	Description
Password	String	No	EcsV587!	The new password of the instance. The password must be 8 to 30 characters in length. It must include at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include: `( ) ` ~ ! @ # $ % ^ & * - _ + = | { } [ ] : ; ' < > , . ? /` The password of a Windows instance cannot start with a forward slash (/). This parameter is empty by default, which indicates that the current password remains unchanged. **Note** If the `Password` parameter is specified, we recommend that you send requests over HTTPS to avoid password leaks.
PasswordInherit	Boolean	No	false	Specifies whether to use the password preset in the image. Default value: false. **Note** If the PasswordInherit parameter is set to true, you must not specify the Password parameter and make sure that the selected image has a password preset.
KeyPairName	String	No	test-KeyPairName	The name of the key pair. **Note** This parameter is applicable only to Linux instances. You can bind an SSH key pair to the instance as a logon credential. However, the password logon method is disabled after you bind the SSH key pair.

Parameter	Type	Required	Example	Description
Platform	String	No	CentOS	The distribution of the operating system. Valid values: • CentOS • Ubuntu
Architecture	String	No	i386	The system architecture. Valid values: • i386 • x86_64
SecurityEnhancementStrategy	String	No	Active	Specifies whether to use Security Center after you replace the system disk. Valid values: • Active: Security Center is used for free after the system disk is replaced. This value is applicable only to public images. • Deactive: Security Center is not used for free after the system disk is replaced. This value is applicable to all images. Default value: Deactive.

Response parameters

Parameter	Type	Example	Description
DiskId	String	d-bp67acfmxazb4p****	The ID of the new system disk.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ReplaceSystemDisk
&InstanceId=i-bp67acfmxazb4p****
&ImageId=m-bp67acfmxazb4p****
&SystemDisk.Size=80
&ClientToken=123e4567-e89b-12d3-a456-426655440000
&PasswordInherit=false
&KeyPairName=test-KeyPairName
&SecurityEnhancementStrategy=Active
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReplaceSystemDiskResponse>
      <DiskId>d-bp67acfmxazb4p****</DiskId>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ReplaceSystemDiskResponse>
```

`JSON` format

```
{
    "RequestId": "337568C5-64F3-4B76-8CDD-D3D8C57B5B8C",
    "DiskId": "d-bp67acfmxazb4p****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidSystemDiskSize.ValueNotSupported	The specified parameter SystemDisk.Size is invalid.	The error message returned because the specified SystemDisk.Size parameter is invalid.
404	InvalidInstanceId.NotFound	The specified instance does not exist.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidSystemDiskStatus.IsTransfering	The current status of the resource does not support this operation, system disk is transfering.	The error message returned because the operation is not supported while the resource is in the current state. Try again after the system disk stops transmitting data.

HTTP status code	Error code	Error message	Description
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Make sure that the disk is available and you have no overdue payments for it.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.
403	ImageNotSubscribed	The specified image has not be subscribed.	The error message returned because you have not subscribed to the specified Alibaba Cloud Marketplace image.
403	ImageRemovedInMarket	The specified market image is not available, Or the specified user defined image includes product code because it is based on an image subscribed from marketplace, and that image in marketplace includeing exact the same product code has been removed.	The error message returned because the specified Alibaba Cloud Marketplace image is unavailable, or because the specified custom image contains the product code of the Alibaba Cloud Marketplace image from which the custom image is derived and the Alibaba Cloud Marketplace image has been removed from Alibaba Cloud Marketplace.
500	OperationDenied	Internal Error.	The error message returned because an internal error has occurred.
400	InvalidParameter.Conflict	The specified image does not support the specified instance type.	The error message returned because the specified image does not support the specified instance type.

HTTP status code	Error code	Error message	Description
404	InvalidSystemDiskSize.MoreThanMaxSize	The specified SystemDisk.Size parameter exceeds the maximum size.	The error message returned because the specified system disk size exceeds the allowed maximum size.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	ChargeTypeViolation	The operation is not permitted due to charge type of the instance.	The error message returned because the billing method of the instance does not support this operation.
403	DiskCreatingSnapshot	The operation is denied due to a snapshot of the specified disk is not completed yet.	The error message returned because a snapshot is being created for the specified disk.
403	IoOptimized.NotSupported	The specified image is not support IoOptimized Instance.	The error message returned because the specified image does not support I/O optimized instances.
403	ImageNotSupportInstanceType	The specified image don not support the InstanceType instance.	The error message returned because the specified image does not support the specified instance type.
403	QuotaExceed.BuyImage	The specified image is from the image market,You have not bought it or your quota has been exceeded.	The error message returned because you have not purchased the specified Alibaba Cloud Marketplace image or your image quota has been used up.
404	InvalidSystemDiskSize.LessThanImageSize	The specified parameter SystemDisk.Size is less than the image size.	The error message returned because the specified system disk size is smaller than the image size.
404	InvalidSystemDiskSize.LessThanMinSize	The specified parameter SystemDisk.Size is less than the min size.	The error message returned because the specified system disk size is smaller than the allowed minimum size.

HTTP status code	Error code	Error message	Description
404	NoSuchResource	The specified resource is not found.	The error message returned because the specified resource does not exist.
400	InvalidSystemDiskSize.ImageNotSupportResize	The specified image does not support resize.	The error message returned because the specified image does not support resizing.
400	InvalidSystemDiskSize	The specified parameter SystemDisk.Size is invalid.	The error message returned because the specified SystemDisk.Size parameter is invalid.
403	INST_HAS_UNPAID_ORDER	The instance has unpaid order.	The error message returned because you have unpaid orders for the instance.
400	InvalidSystemDiskSize.ValueNotSupported	The specified parameter SystemDisk.Size is invalid	The error message returned because the specified SystemDisk.Size parameter is invalid.
400	InvalidPassword.Malformed	The specified parameter "Password" is not valid.	The error message returned because the specified Password parameter is invalid.
400	InvalidPasswordParam.Mismatch	The input password should be null when passwdInherit is true.	The error message returned because the Password parameter is specified when PasswdInherit is set to true.
400	OperationDenied	The specified image contains the snapshot of the data disk,does not support this operation.	The error message returned because the operation is not supported while the image contains data disk snapshots.
400	InvalidDiskCategory.ValueNotSupported	The specified parameter "DiskCategory" is not valid.	The error message returned because the specified disk category is invalid.
403	OperationDenied.InstanceCreating	The specified instance is creating.	The error message returned because the specified instance is being created.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.

HTTP status code	Error code	Error message	Description
400	InvalidSystemDiskSize.ValueNotSupported	%s	The error message returned because the specified SystemDisk.Size parameter is invalid.
400	OperationDenied	%s	The error message returned because the operation is denied.
400	InvalidKeyPairName.NotFound	The specified KeyPairName does not exist.	The error message returned because the specified KeyPairName parameter does not exist.
400	DependencyViolation.IoOptimize	The specified parameter InstanceId is not valid.	The error message returned because the specified InstanceId parameter is invalid.
403	InvalidParameter.NotMatch	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	MissingParameter.Architecture	Architecture should not be null.	The error message returned because the Architecture parameter is not specified.
400	InvalidArchitecture.Malformed	Architecture is not valid.	The error message returned because the specified Architecture parameter is invalid.
400	MissingParameter.Platform	Platform should not be null.	The error message returned because the Platform parameter is not specified.
400	InvalidPlatform.Malformed	Platform is not valid.	The error message returned because the specified Platform parameter is invalid.
400	InvalidParameter.AllEmpty	%s	The error message returned because the required parameters are not specified.
400	InvalidDiskId.NotFound	The specified disk do not exist.	The error message returned because the specified disk does not exist.
400	InvalidDatadisk.DiskStatusViolation	The operation is not permitted due to status of the Datadisk.	The error message returned because the operation is not supported while the data disk is in the current state.

HTTP status code	Error code	Error message	Description
400	InvalidDatadisk.DiskCategoryViolation	The operation is not permitted due to category of the Datadisk.	The error message returned because the category of the data disk does not support the operation.
403	ResourcesNotInSameZone	The specified instance and disk are not in the same zone.	The error message returned because the specified instance and disk are not in the same zone.
400	InvalidSystemDiskSize.ValueNotSupported	The specified SystemDiskSize is not valid.	The error message returned because the specified SystemDisk.Size parameter is invalid.
400	MissingParameter	The input parameter "ImageId" that is mandatory for processing this request is not supplied.	The error message returned because the ImageId parameter is not specified.
403	ImageNotSupportInstanceType	The specified instanceType is not supported by instance with marketplace image.	The error message returned because the specified Alibaba Cloud Marketplace image does not support the instance type.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	OperationDenied.ImageNotValid	%s	The error message returned because the image does not support the operation.

2.1.2.1.7.9. ResizeDisk

You can call this operation to resize a system disk or data disk.

Description

Note Before you call this operation to resize a disk, you must check the partition format of the disk. You cannot resize an MBR disk to larger than 2 TiB in size without data loss. To resize an MBR disk to larger than 2 TiB in size, we recommend that you create and attach a new data disk with the desired size. Then, we recommend that you use the GPT partition format to partition and format the new data disk and copy data from the MBR-formatted data disk to the new GPT-formatted data disk. For more information, see Expand a disk in ECS User Guide.

- You can resize the disks of different categories, including basic disks (`cloud`), ultra disks (`cloud_e`

fficiency), and standard SSDs (cloud_ssd).

- You cannot resize a disk when a snapshot is being created for the disk.
- The instance to which the disk to be resized is attached must be in the **Running** (Running) or **Stopped** (Stopped) state.
- After you resize a disk, its partitions and file systems are not changed. You must manually allocate the storage space on the disk after it is resized.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResizeDisk	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the Action parameter. Set the value to ResizeDisk.
DiskId	String	Yes	d-bp67acfmxazb4p****	The ID of the disk.
NewSize	Integer	Yes	1900	The new disk capacity. Unit: GiB. Valid values: • For ultra disks (cloud_efficiency): 20 to 32768 • For standard SSDs (cloud_efficiency): 20 to 32768 • For basic disks (cloud): 5 to 2000 The new disk capacity must be greater than the original disk capacity.
Type	String	No	offline	The method used to resize the disk. Default value: offline. Valid values: • offline: resizes the disk offline. After you resize a disk offline, you must restart its associated instance by using the ECS console or by calling the RebootInstance operation to make the resizing operation take effect. • online: resizes the disk online. After you resize a disk online, the operation takes effect immediately without the need to restart the instance. You can resize ultra disks and standard SSDs online.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F3CD6886-D8D0-4FEE-B93E-1B73239673DE	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ResizeDisk
&DiskId=d-bp67acfmxazb4p****
&NewSize=1900
&ClientToken=123e4567-e89b-12d3-a456-426655440000
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ResizeDiskResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ResizeDiskResponse>
```

`JSON` format

```
{
    "RequestId": "F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidDataDiskSize.ValueNotSupported	The specified DataDisk.n.Size beyond the permitted range, or the capacity of snapshot exceeds the size limit of the specified disk category.	The error message returned because the specified DataDisk.N.Size parameter is invalid or the snapshot size exceeds the maximum capacity that is allowed for the specified category.
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified instance does not exist.
403	OperationDenied	The type of the disk does not support the operation.	The error message returned because the specified disk category does not support the operation.
403	OperationDenied	The status of the disk or the instance that the disk is attaching with does not support the operation.	The error message returned because the operation is not supported while the disk or instance is in the current state.
403	InvalidDiskSize.TooSmall	Specified new disk size is less than the original disk size.	The error message returned because the specified new disk capacity is smaller than the original disk capacity.
403	InvalidDiskSize.TooLarge	Specified new disk size is beyond the permitted range.	The error message returned because the specified new disk capacity exceeds the capacity limit.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance first.
403	DiskError	IncorrectDiskStatus	The error message returned because the status of the specified disk is invalid.
403	DiskInArrears	The specified operation is denied as your disk owing fee.	The error message returned because you have an overdue payment for the disk.

HTTP status code	Error code	Error message	Description
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	DiskCreatingSnapshot	The operation is denied due to a snapshot of the specified disk is not completed yet.	The error message returned because a snapshot is being created for the specified disk.
400	InvalidDataDiskCategory.ValueNotSupported	%s	The error message returned because the specified data disk category is invalid.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	InvalidDataDiskSize.ValueNotSupported	%s	The error message returned because the specified data disk capacity is invalid.
400	InvalidSystemDiskSize.ValueNotSupported	%s	The error message returned because the specified system disk size is invalid.
403	InvalidDiskSize	Specified new disk size is less than or equal the original disk size.	The error message returned because the specified new disk capacity is smaller than or equal to the original disk capacity.
400	IncompleteParamter	Some fields can not be null in this request.	The error message returned because some required parameters are not specified.
403	Operation.Conflict	The operation may conflicts with others.	The error message returned because the operation conflicts with other operations.
403	InstanceLockedForSecurity	The instance is locked due to security.	The error message returned because the operation is not supported while the resource is locked for security reasons.

HTTP status code	Error code	Error message	Description
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Make sure that the disk is available and you have no overdue payment for it.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are authorized to manage the disk. Try again when you are authorized.
400	InvalidRegionId.MalFormed	The specified RegionId is not valid	The error message returned because the specified RegionId parameter is invalid.
403	InvalidDiskCategory.NotSupported	The specified disk category is not supported.	The error message returned because the specified disk category does not support the operation.
400	InvalidParam.Type	The specified type is not supported.	The error message returned because the specified Type parameter is invalid.
403	InvalidRegion.NotSupport	The specified region does not support resize online.	The error message returned because online resizing is not supported in the specified region.
403	InvalidDiskCategory.NotSupported	The specified disk category does not support resize online.	The error message returned because the specified disk category does not support online resizing.
403	IncorrectInstanceStatus	The current status of the resource does not support resize online.	The error message returned because this operation is not supported while the resource is in the current state.
403	InvalidInstanceStatus.NotRunning	The status of instance to which the disk attachs must be running when resizing online.	The error message returned because the instance to which the disk is attached is not in the Running state when you resize the disk online.
403	IncorrectDiskStatus	The current status of the resource does not support resize online	The error message returned because online resizing is not supported while the resource is in the current state.

HTTP status code	Error code	Error message	Description
400	LastOrderProcessing	The previous order is still processing, please try again later.	The error message returned because the order is being processed. Try again later.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	SecurityRisk.3DVerification	We have detected a security risk with your default credit or debit card. Please proceed with verification via the link in your email.	The error message returned because risks are detected in your default credit card or debit card. Click the link in the email for verification.
400	InvalidSystemDiskSize.ImageNotSupportResize	The specified image does not support resize.	The error message returned because the specified image does not support resizing.

2.1.2.1.7.10. DeleteDisk

You can call this operation to release a data disk. The data disk can be a basic disk, an ultra disk, a standard SSD, or an enhanced SSD (ESSD).

Description

When you call this operation, take note of the following items:

- Manual snapshots of the disk to be released will be retained.
- You can call the ModifyDiskAttribute operation to configure whether automatic snapshots are retained or released along with the disk. We recommend that you delete the snapshots that are no longer needed to maintain a sufficient quota for new automatic snapshots.
- The disk must be in the Available (Available) state.
- If the specified disk does not exist, the request will be ignored.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDisk	The operation that you want to perform. Set the value to DeleteDisk.

Parameter	Type	Required	Example	Description
DiskId	String	Yes	d-bp198f7xn673w2rw****	The ID of the disk to be released.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteDisk
&DiskId=d-bp198f7xn673w2rw****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDiskResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteDiskResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payments for it.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	DiskNotPortable	The specified disk is not a portable disk.	The error message returned because the specified disk is not removable.
403	DiskTypeViolation	The specified disk is a system disk and cannot support the operation.	The error message returned because the specified disk is a system disk and cannot be detached from its attached instance.
403	DiskCreatingSnapshot	The operation is denied due to a snapshot of the specified disk is not completed yet.	The error message returned because a snapshot is being created for the specified disk.
403	IncorrectDiskStatus.Initializing	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payments for it.
404	InvalidDiskId.NotFound	The specified disk does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.
403	DiskStillAttached	The disk is still attached to the disk.	The error message returned because the specified disk is still attached to an instance.
403	UserNotInTheWhiteList	The user is not in disk white list.	The error message returned because you are not authorized to manage the disk.
400	InvalidRegionId.MalFormed	The specified parameter RegionId is not valid.	The error message returned because the specified region ID is invalid.

2.1.2.1.8. Snapshots

2.1.2.1.8.1. CreateSnapshot

You can call this operation to create a snapshot for a disk.

Description

In the following scenarios, you cannot create snapshots for a disk:

- The number of manual snapshots created for the disk has reached 256.
- A snapshot is being created for the disk.
- The instance to which the disk is attached has never been started.
- The instance to which the disk is attached is not in the **Stopped** (`Stopped`) or **Running** (`Running`) state.
- If the response contains `{"OperationLocks": {"LockReason" : "security"}}` when you query the information of an instance, the instance is locked for security reasons and all operations are prohibited on it.

When you create a snapshot, take note of the following items:

- You can create a snapshot for a disk one hour after its attached instance is created or the system disk of the instance is replaced. After a data disk is added, you must wait a period of time before you can create snapshots for the disk. The amount of time to wait depends on the size of the disk data.
- If a snapshot is being created, you cannot use this snapshot to create a custom image by calling the CreateImage operation.
- If the disk is attached to an instance, do not change the instance state during snapshot creation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSnapshot	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to CreateSnapshot.
DiskId	String	Yes	d-bp1s5fnvk4gn2tws0****	The ID of the disk.
SnapshotName	String	No	test-Snapshot****	The name of the snapshot to be created. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://. It also cannot start with auto because snapshot names that start with auto are recognized as automatic snapshots.

Parameter	Type	Required	Example	Description
Description	String	No	This is a description example.	The description of the snapshot. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.
RetentionDays	Integer	No	30	The retention period of the snapshot. Valid values: 1 to 65536. Unit: days. The snapshot will be automatically released when the retention period expires. This parameter is empty by default, which indicates that the snapshot will not be automatically released.
Category	String	No	Standard	The type of the snapshot. Valid values: • Standard: normal snapshot • Flash: local snapshot
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Tag.N.Key	String	No	TestKey	The key of tag N of the snapshot. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	TestValue	The value of tag N of the snapshot. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SnapshotId	String	s-bp17441ohwka0yuh****	The ID of the snapshot.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateSnapshot
&DiskId=d-bp1s5fnvk4gn2tws0****
&SnapshotName=test-SnapshotName
&Description=This is a description example.
&ClientToken=123e4567-e89b-12d3-a456-42665544****
&Tag.1.Key=TestKey
&Tag.1.Value=TestValue
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSnapshotResponse>
          <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
          <SnapshotId>s-bp17441ohwka0yuh****</SnapshotId>
</CreateSnapshotResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "SnapshotId": "s-bp17441ohwka0yuh****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The specified DiskId does not exist.	The error message returned because the specified DiskId parameter does not exist. Check whether the disk ID is correct.

HTTP status code	Error code	Error message	Description
400	InvalidSnapshotName.Malformed	The specified SnapshotName is wrongly formed.	The error message returned because the specified SnapshotName parameter is invalid.
404	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	IncorrectDiskStatus.CreatingSnapshot	A previous snapshot creation is in process.	The error message returned because another snapshot is being created. Wait until the snapshot is created and try again.
403	InstanceLockedForSecurity	The disk attached instance is locked due to security.	The error message returned because the instance to which the disk is attached is locked for security reasons.
403	IncorrectDiskStatus.NeverAttached	The specified disk has never been attached to any instance.	The error message returned because the specified disk has never been attached to instances and its content remains unchanged.
403	QuotaExceed.Snapshot	The snapshot quota exceeds.	The error message returned because the maximum number of snapshots has been reached. To store new snapshots, delete snapshots that are no longer needed.
403	IncorrectDiskStatus.NeverUsed	The specified disk has never been used after creating.	The error message returned because the specified disk has never been used and its content remains unchanged.
403	CreateSnapshot.Failed	The process of creating snapshot is failed.	The error message returned because the snapshot has failed to be created.

HTTP status code	Error code	Error message	Description
403	DiskInArrears	The specified operation is denied as your disk has expired.	The error message returned because the disk has expired due to an overdue payment.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	DiskId.ValueNotSupported	The specified parameter diskid is not supported.	The error message returned because the specified Block Storage device does not support the operation.
400	DiskCategory.OperationNotSupported	The operation is not supported to the specified disk due to its disk category	The error message returned because the disk category does not support the operation.
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payments for it.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified instance does not exist.
403	IncorrectVolumeStatus	The current volume status does not support this operation.	The error message returned because the operation is not supported while the Shared Block Storage device is in the current state.

HTTP status code	Error code	Error message	Description
404	InvalidVolumeId.NotFound	The specified volume does not exist.	The error message returned because the specified Shared Block Storage device does not exist. Check whether the Shared Block Storage device ID is correct.
403	IdempotentParameterMismatch	The specified clientToken is used.	The error message returned because the specified client token is already in use.
403	IncorrectDiskStatus.Invalid	The specified device status invalid, restart instance and try again.	The error message returned because the status of the specified disk is invalid. Restart the instance and try again.
403	IncorrectDiskType.NotSupport	The specified device type is not supported.	The error message returned because the disk category does not support the operation.
403	IncorrectDiskStatus.Transferring	The specified device is transferring, you can retry after the process is finished.	The error message returned because the specified disk is being migrated. Wait until the disk is migrated and try again.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.

HTTP status code	Error code	Error message	Description
403	IdempotentProcessing	The previous idempotent request(s) is still processing.	The error message returned because a previous idempotent request is being processed. Try again later.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.

2.1.2.1.8.2. DeleteSnapshot

You can call this operation to delete a snapshot. If you call this operation to delete a snapshot that is being created, the snapshot creation task is canceled.

Description

When you call this operation, take note of the following items:

- If the specified snapshot ID does not exist, the request will be ignored.
- A snapshot that has already been used to create custom images cannot be deleted. The snapshot can be deleted only after the created custom images are deleted (DeleteImage).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSnapshot	The operation that you want to perform. Set the value to DeleteSnapshot.
SnapshotId	String	Yes	s-bp1btgnlb4licd41****	The ID of the snapshot to be deleted.
Force	Boolean	No	false	Specifies whether to forcibly delete the snapshot that has been used to create disks. **Note** After an snapshot is deleted, the disks created from this snapshot cannot be re-initialized.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request. Every response returns a unique request ID regardless of whether the call is successful.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteSnapshot
&SnapshotId=s-bp1btgnlb4licd41****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSnapshotResponse>
       <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteSnapshotResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	SnapshotCreatedImage	The snapshot has been used to create user defined image(s).	The error message returned because the specified snapshot has been used to create custom images. You must delete the associated images before you can delete the snapshot. If you forcibly delete the snapshot, the images associated with the snapshot will become unavailable.
403	SnapshotCreatedDisk	The snapshot has been used to create disk(s).	The error message returned because the specified snapshot has been used to create disks.

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter SnapshotId that is mandatory for processing this request is not supplied.	The error message returned because the required SnapshotId parameter is not specified.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
404	InvalidSnapshotId.NotFound	The specified snapshot is not found	The error message returned because the specified SnapshotId parameter does not exist.
403	Operation.Conflict	The operation may conflicts with others, please retry later.	The error message returned because the operation conflicts with other operations. Try again later.

2.1.2.1.8.3. DescribeSnapshots

You can call this operation to query all snapshots of an ECS instance or a disk.

Description

You can specify multiple request parameters such as InstanceId, DiskId, and SnapshotIds to be queried. Specified parameters have logical AND relations. Only specified parameters are included in the filter conditions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnapshots	The operation that you want to perform. Set the value to DescribeSnapshots.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance or disk. You can call the DescribeRegions operation to query the most recent region list.
InstanceId	String	No	i-bp67acfmxazb4p****	The ID of the instance.

Parameter	Type	Required	Example	Description
DiskId	String	No	d-bp67acfmxazb4p****	The ID of the disk.
SnapshotLinkId	String	No	sp-bp67acfmxazb4p****	The ID of the snapshot chain.
SnapshotIds	String	No	["s-bp67acfmxazb4ph****", "s-bp67acfmxazb4pk****", ... "s-bp67acfmxazb4pj****"]	The IDs of snapshots. The value can be a JSON array that consists of up to 100 snapshot IDs. Separate multiple snapshot IDs with commas (,).
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.
SnapshotName	String	No	test-SnapshotName	The name of the snapshot.
Status	String	No	all	The status of the snapshot. Default value: all. Valid values: • progressing: The snapshot is being created. • accomplished: The snapshot is created. • failed: The snapshot failed to be created. • all: all snapshot states.
SnapshotType	String	No	all	The type of the snapshot. Default value: all. Valid values: • auto: automatic snapshot • user: manual snapshot • all: all snapshot types

Parameter	Type	Required	Example	Description
Filter.1.Key	String	No	CreationStartTime	The key of filter condition 1 used to query resources. Set the value to CreationStartTime.
Filter.2.Key	String	No	CreationEndTime	The key of filter condition 2 used to query resources. Set the value to CreationEndTime.
Filter.1.Value	String	No	2019-12-13T17:00Z	The value of filter condition 1 used to query resources. The value must be the beginning of the time range in which to query created resources.
Filter.2.Value	String	No	2019-12-13T22:00Z	The value of filter condition 2 used to query resources. The value must be the end of the time range in which to query created resources.
Usage	String	No	none	Specifies whether the snapshot has been used to create images or disks. Valid values: • image: The snapshot has been used to create custom images. • disk: The snapshot has been used to create disks. • image_disk: The snapshot has been used to create custom images and data disks. • none: The snapshot has not been used to create custom images or disks.
SourceDiskType	String	No	Data	The category of the disk for which the snapshot was created. Valid values: • System: system disk • Data: data disk
Tag.N.Key	String	No	TestKey	The key of tag N of the snapshot. Valid values of N: 1 to 20.
Tag.N.Value	String	No	TestValue	The value of tag N of the snapshot. Valid values of N: 1 to 20.

Parameter	Type	Required	Example	Description
Encrypted	Boolean	No	false	Specifies whether the snapshot is encrypted. Default value: false.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the snapshot belongs.
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid value: • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the DryRunOperation error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made.
KMSKeyId	String	No	0e478b7a-4262-4802-b8cb-00d3fb40****	The ID of the KMS key used by the data disk.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
Snapshots	Array		The collections of details about snapshots.
Snapshot			

Parameter	Type	Example	Description
Category	String	standard	The type of the snapshot. Valid values: • standard: normal snapshot • flash: local snapshot
CreationTime	String	2019-12-24T13:00:52Z	The time when the snapshot was created. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
Description	String	FinanceDept	The description of the snapshot.
Encrypted	Boolean	false	Indicates whether the snapshot was encrypted.
KMSKeyId	String	0e478b7a-4262-4802-b8cb-00d3fb40826X	The ID of the KMS key used by the data disk.
LastModifiedTime	String	test	**Note** This parameter is not supported.
ProductCode	String	jxsc000***	**Note** This parameter is not supported.
Progress	String	100	The progress of the snapshot creation task. Unit: percent (%).
RemainTime	Integer	38	The time remaining for the snapshot creation task. Unit: seconds.
ResourceGroupId	String	rg-bp67acfmxazb4p****	The ID of the resource group to which the snapshot belongs.
RetentionDays	Integer	30	The retention period of the automatic snapshot. Unit: days.
SnapshotId	String	s-bp67acfmxazb4p****	The ID of the snapshot.

Parameter	Type	Example	Description
SnapshotName	String	test-SnapshotName	The name of the snapshot. This parameter is returned only if a name was specified during creation of the snapshot.
SnapshotSN	String	64472-116742336-61976****	The serial number of the snapshot.
SnapshotType	String	all	The type of the snapshot. Default value: all. Valid values: • auto: automatic snapshot • user: manual snapshot • all: all snapshot types
SourceDiskId	String	d-bp67acfmxazb4p****	The ID of the disk for which the snapshot was created. This parameter is retained even after the disk is released.
SourceDiskSize	String	2000	The size of the disk for which the snapshot was created. Unit: GiB.
SourceDiskType	String	Data	The type of the disk for which the snapshot was created. Valid values: • System • Data
SourceStorageType	String	disk	The category of the disk for which the snapshot was created. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure compatibility.
Status	String	accomplished	The status of the snapshot. Valid values: • progressing • accomplished • failed

Parameter	Type	Example	Description
Tags	Array		The tags of the snapshot.
Tag			
TagKey	String	TestKey	The tag key of the snapshot.
TagValue	String	TestValue	The tag value of the snapshot.
Usage	String	none	Indicates whether the snapshot had been used to create images or disks. Valid values: • image • disk • image_disk • none
TotalCount	Integer	36	The total number of snapshots.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSnapshots
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-bp67acfmxazb4p****
&DiskId=d-bp67acfmxazb4p****
&SnapshotIds=["s-bp67acfmxazb4p****", "s-bp67acfmxazb4p****", … "s-bp67acfmxazb4p****"]
&PageNumber=1
&PageSize=10
&SnapshotName=test-SnapshotName
&Status=all
&SnapshotType=all
&Usage=none
&SourceDiskType=Data
&Tag.1.Key=TestKey
&Tag.1.Value=TestValue
&Encrypted=false
&DryRun=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnapshotsResponse>
      <PageNumber>1</PageNumber>
      <PageSize>2</PageSize>
      <RequestId>659F91C6-1949-43B0-90C4-B6342CA757D5</RequestId>
      <Snapshots>
            <Snapshot>
                  <CreationTime>2015-07-30T05:00:14Z</CreationTime>
                  <Progress>100%</Progress>
                  <SnapshotId>s-bp67acfmxazb4ph****</SnapshotId>
                  <SnapshotName>auto_20150730_3</SnapshotName>
                  <SourceDiskId>d-bp67acfmxazb4p****</SourceDiskId>
                  <SourceDiskSize>20</SourceDiskSize>
                  <SnapshotType>user</SnapshotType>
                  <SourceDiskType>system</SourceDiskType>
                  <Status>accomplished</Status>
                  <Usage>none</Usage>
            </Snapshot>
            <Snapshot>
                  <CreationTime>2015-07-30T05:00:14Z</CreationTime>
                  <Progress>100%</Progress>
                  <SnapshotId>s-bp67acfmxazb4pk****</SnapshotId>
                  <SnapshotName>auto_20150730_3</SnapshotName>
                  <SourceDiskId>d-bp67acfmxazb4p****</SourceDiskId>
                  <SourceDiskSize>20</SourceDiskSize>
                  <SourceDiskType>system</SourceDiskType>
                  <Status>accomplished</Status>
                  <Usage>none</Usage>
            </Snapshot>
      </Snapshots>
      <TotalCount>36</TotalCount>
</DescribeSnapshotsResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "PageSize": 2,
    "RequestId": "659F91C6-1949-43B0-90C4-B6342CA757D5",
    "Snapshots": {
        "Snapshot": [
            {
                "CreationTime": "2015-07-30T05:00:14Z",
                "Progress": "100%",
                "SnapshotId": "s-bp67acfmxazb4ph****",
                "SnapshotName": "auto_20150730_3",
                "SourceDiskId": "d-bp67acfmxazb4p****",
                "SourceDiskSize": 20,
                "SnapshotType": "user",
                "SourceDiskType": "system",
                "Status": "accomplished",
                "Usage": "none"
            },
            {
                "CreationTime": "2015-07-30T05:00:14Z",
                "Progress": "100%",
                "SnapshotId": "s-bp67acfmxazb4pk****",
                "SnapshotName": "auto_20150730_3",
                "SourceDiskId": "d-bp67acfmxazb4p****",
                "SourceDiskSize": 20,
                "SourceDiskType": "system",
                "Status": "accomplished",
                "Usage": "none"
            }
        ]
    },
    "TotalCount": 36
}
```


Error codes

HTTP status code	Error code	Error message	Description
403	InvalidSnapshotIds.Malformed	The amount of specified specified snapshot Ids exceeds the limit.	The error message returned because the specified SnapshotIds parameter is invalid.
404	InvalidFilterKey.NotFound		The error message returned because the specified start time or end time is invalid.
404	InvalidUsage	The specifed Usage is not valid	The error message returned because the specified Usage parameter is invalid.

HTTP status code	Error code	Error message	Description
404	InvalidSourceDiskType	The specifed SourceDiskType is not valid	The error message returned because the specified SourceDiskType parameter is invalid.
404	InvalidStatus.NotFound	The specified Status is not found	The error message returned because the specified Status parameter does not exist.
404	InvalidSnapshotType.NotFound	The specfied SnapshotType is not found	The error message returned because the specified SnapshotType parameter does not exist.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
404	InvalidSnapshotLinkId.NotFound	The specified snapshot link is not found.	The error message returned because the specified snapshot chain does not exist.

2.1.2.1.8.4. CopySnapshot

You can call this operation to copy a normal snapshot from one region to another.

Description

When you call this operation, take note of the following items:

- New snapshots, which are the copies of source snapshots, cannot be used to roll back the disks for which the source snapshots were created.
- Encrypted snapshots cannot be copied.
- Local snapshots cannot be copied.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CopySnapshot	The operation that you want to perform. Set the value to CopySnapshot.
SnapshotId	String	Yes	s-bp67acfmxazb4p****	The ID of the source snapshot.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the source snapshot. You can call the DescribeRegions operation to query the most recent region list.
DestinationRegionId	String	Yes	cn-beijing-env17-d01	The region ID of the new snapshot.
DestinationSnapshotName	String	Yes	test-DestinationSnapshotName	The name of the new snapshot. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), periods (.), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
DestinationSnapshotDescription	String	Yes	This is a description example.	The description of the new snapshot. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.
RetentionDays	Integer	No	60	The retention period of the new snapshot. Unit: days. The new snapshot will be automatically released when it expires. Valid values: 1 to 65536. This parameter is empty by default, which indicates that the snapshot will not be automatically released.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the new snapshot. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the new snapshot. The tag value can be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C8B26B44-0189-443E-9816-D951F59623A9	The ID of the request.
SnapshotId	String	s-bp17441ohwka0yui****	The ID of the new snapshot.

Examples

Sample requests

```
https://ecs.example.com/?Action=CopySnapshot
&DestinationRegionId=cn-beijing-env17-d01
&RegionId=cn-qingdao-env17-d01
&SnapshotId=s-bp67acfmxazb4p****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CopySnapshotResponse>
            <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
            <SnapshotId>s-bp17441ohwka0yuhi****</SnapshotId>
</CopySnapshotResponse>
```

`JSON` format

```
{
        "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
        "SnapshotId": "s-bp17441ohwka0yuhi****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidSnapshotId.NotFound	The specified snapshot is not exists.	The error message returned because the specified SnapshotId parameter does not exist.
403	InvalidUser.NotInWhiteList	The user is not in the white list of copying snapshot.	The error message returned because you are not authorized to perform this operation.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
400	InvalidRegionId.MalFormed	The specified RegionId is not valid	The error message returned because the specified RegionId parameter is invalid.

2.1.2.1.8.5. DescribeSnapshotLinks

You can call this operation to query the snapshot chains of one or more disks. A snapshot chain is a chain of all the snapshots created for a disk. A disk corresponds to a chain of snapshots.

Description

When you call this operation, take note of the following items:

- You can specify multiple request parameters such as `RegionId`, `DiskIds`, and `InstanceId` to be queried. Specified parameters have logical AND relations.
- Only the specified parameters are used as filter conditions. If the `DiskIds` and `SnapshotLinkIds` parameters are set to empty JSON arrays, they are regarded as valid filter conditions and an empty result is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnapshotLinks	The operation that you want to perform. Set the value to DescribeSnapshotLinks.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the disk. You can call the DescribeRegions operation to query the most recent region list.
InstanceId	String	No	i-bp1ahcvgu9z55pk7****	The ID of the instance.
DiskIds	String	No	["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", ... "d-bp1btgnlb4lgdzoi****"]	The IDs of disks. The value is a JSON array that consists of up to 100 disk IDs. Separate multiple disk IDs with commas (,).
SnapshotLinkIds	String	No	["sl-bp14r3b4xczuenhr****", "sl-bp1eftye2796vi2a****", ... "sl-bp1aixnfbjo290a8****"]	The IDs of snapshot chains. The value is a JSON array that consists of up to 100 snapshot chain IDs. Separate multiple snapshot chain IDs with commas (,).
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	50	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	50	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SnapshotLinks	Array of SnapshotLink		Details about the snapshot chains.
SnapshotLink			
Category	String	test	**Note** This parameter is not supported.
InstanceId	String	i-bp1ahcvgu9z55pk7****	The ID of the instance.
InstanceName	String	test-InstanceName	The name of the instance.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the source disk of the snapshot chain is located.
SnapshotLinkId	String	sl-bp14r3b4xczuenhr****	The ID of the snapshot chain.
SourceDiskId	String	d-bp198f7xn673w2rw****	The ID of the source disk. This parameter is retained even if the source disk is deleted.
SourceDiskName	String	test-SourceDiskName	The name of the source disk.
SourceDiskSize	Integer	40	The size of the source disk. Unit: GiB.

Parameter	Type	Example	Description
SourceDiskType	String	cloud_ssd	The category of the source disk. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: enhanced SSD (ESSD) • ephemeral_ssd: local SSD • cloud: basic disk
TotalCount	Integer	1	The total number of snapshots.
TotalSize	Long	2097152	The total size of all snapshots in the snapshot chain. Unit: byte.
TotalCount	Integer	9	The total number of snapshot chains.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSnapshotLinks
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-bp1ahcvgu9z55pk7****
&DiskIds=["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", ... "d-bp1btgnlb4lgdzoi****"]
&SnapshotLinkIds=["sl-bp14r3b4xczuenhr****", "sl-bp1eftye2796vi2a****", ... "sl-bp1aixnfbjo290a8****"]
&PageNumber=1
&PageSize=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnapshotLinksResponse>
      <SnapshotLinks>
            <SnapshotLink>
                  <SourceDiskSize>20</SourceDiskSize>
                  <TotalSize>2097152</TotalSize>
                  <SourceDiskType>data</SourceDiskType>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <SnapshotLinkId>sl-bp14r3b4xczuenhr****</SnapshotLinkId>
                  <SourceDiskId>d-bp198f7xn673w2rw****</SourceDiskId>
                  <TotalCount>1</TotalCount>
            </SnapshotLink>
            <SnapshotLink>
                  <SourceDiskSize>40</SourceDiskSize>
                  <TotalSize>2097152</TotalSize>
                  <SourceDiskType>data</SourceDiskType>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <SnapshotLinkId>sl-bp14r3b4xczuenhr****</SnapshotLinkId>
                  <SourceDiskId>d-bp198f7xn673w2rw****</SourceDiskId>
                  <TotalCount>1</TotalCount>
            </SnapshotLink>
      </SnapshotLinks>
      <PageNumber>1</PageNumber>
      <PageSize>2</PageSize>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
      <TotalCount>9</TotalCount>
</DescribeSnapshotLinksResponse>
```

`JSON` format

```
{
    "SnapshotLinks": {
        "SnapshotLink": [
            {
                "SourceDiskSize": 20,
                "TotalSize": 2097152,
                "SourceDiskType": "data",
                "RegionId": "cn-qingdao-env17-d01",
                "SnapshotLinkId": "sl-bp14r3b4xczuenhr****",
                "SourceDiskId": "d-bp198f7xn673w2rw****",
                "TotalCount": 1
            },
            {
                "SourceDiskSize": 40,
                "TotalSize": 2097152,
                "SourceDiskType": "data",
                "RegionId": "cn-qingdao-env17-d01",
                "SnapshotLinkId": "sl-bp14r3b4xczuenhr****",
                "SourceDiskId": "d-bp198f7xn673w2rw****",
                "TotalCount": 1
            }
        ]
    },
    "PageNumber": 1,
    "PageSize": 2,
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E",
    "TotalCount": 9
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidRegionId	The specified regionId is invalid.	The error message returned because the specified RegionId parameter is invalid.
400	InvalidSnapshotLinkIds	The specified snapshotLinkIds is invalid.	The error message returned because the specified SnapshotLinkIds parameter is invalid.
400	InvalidDiskIds	The specified diskIds is invalid.	The error message returned because the specified DiskIds parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.8.6. DescribeSnapshotsUsage

You can call this operation to query the number of snapshots stored in a region and the total size of the snapshots.

If you want to view the snapshot usage information on each disk in the current region, we recommend that you call the DescribeSnapshotLinks operation to query snapshot chain information.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnapshotsUsage	The operation that you want to perform. Set the value to DescribeSnapshotsUsage.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the snapshot. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SnapshotCount	Integer	5	The number of snapshots stored in the current region.
SnapshotSize	Long	122	The total size of snapshots stored in the current region. Unit: byte.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSnapshotsUsage
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnapshotsUsageResponse>
      <SnapshotCount>5</SnapshotCount>
      <SnapshotSize>122</SnapshotSize>
      <RequestId>ED5CF6DD-71CA-462C-9C94-A61A78A01479</RequestId>
</DescribeSnapshotsUsageResponse>
```

`JSON` format

```
{
    "SnapshotCount": "5",
    "SnapshotSize": "122",
    "RequestId": "ACD9BBB0-A9D1-46D7-9630-B7A69889E110"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidParam.RegionId	The specified region is not exist.	The error message returned because the specified RegionId parameter does not exist.

2.1.2.1.8.7. CreateAutoSnapshotPolicy

You can call this operation to create an automatic snapshot policy.

Description

After an automatic snapshot policy is created, you can call the ApplyAutoSnapshotPolicy operation to apply the policy to disks. You can also call the ModifyAutoSnapshotPolicyEx operation to modify the automatic snapshot policy.

When you call this operation, take note of the following items:

- A maximum of 100 automatic snapshot policies can be created in each region per Apsara Stack tenant account.
- If an automatic snapshot is being created when the time scheduled for a new automatic snapshot is due, the new snapshot task is skipped. This may occur when a disk contains a large volume of data. For example, an automatic snapshot policy is applied to a disk that contains a large volume of data, and the policy specifies that snapshots are created at 09:00, 10:00, 11:00, and 12:00. The system starts to create a snapshot for the disk at 09:00. The snapshot creation process takes 80 minutes and ends at 10:20. The system skips the automatic snapshot task scheduled for 10:00 and creates the next automatic snapshot for the disk at 11:00.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateAutoSnapshotPolicy	The operation that you want to perform. Set the value to CreateAutoSnapshotPolicy.
regionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create an automatic snapshot policy. You can call the DescribeRegions operation to query the most recent region list.
repeatWeekdays	String	Yes	["1","2"]	The days of the week on which to create automatic snapshots. Valid values: 1 to 7, which correspond to Monday to Sunday. 1 indicates Monday. To schedule multiple automatic snapshots to be created for a disk in a week, you can set this parameter to a JSON array. • You can specify up to seven values in the array. • Separate the values in the array with commas (,). Example: `["1","2"..." "7"]`.
retentionDays	Integer	Yes	30	The number of days for which to retain automatic snapshots. Valid values: • -1: Automatic snapshots are permanently retained. • 1 to 65535: Automatic snapshots are retained for a specified number of days. Default value: -1.
timePoints	String	Yes	["0", "1", ... "23"]	The point in time at which to create automatic snapshots. Unit: hours. Valid values: 0 to 23. These values correspond to the hours of the day from 00:00 to 23:00. 1 indicates 01:00. To schedule multiple automatic snapshots to be created for a disk in a day, you can set this parameter to a JSON array that consists of multiple values. You can specify up to 24 values in the array.

Parameter	Type	Required	Example	Description
autoSnapshotPolicyName	String	No	test-autoSnapshotPolicyName	The name of the automatic snapshot policy. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://. This parameter is empty by default.

Response parameters

Parameter	Type	Example	Description
AutoSnapshotPolicyId	String	sp-bp12m37ccmxvbmi5****	The ID of the automatic snapshot policy.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateAutoSnapshotPolicy
&regionId=cn-qingdao-env17-d01
&repeatWeekdays=["1"]
&retentionDays=30
&timePoints=["0", "19"]
&autoSnapshotPolicyName=test-autoSnapshotPolicyName
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateAutoSnapshotPolicyResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
      <AutoSnapshotPolicyId>sp-bp12m37ccmxvbmi5****</AutoSnapshotPolicyId>
</CreateAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "RequestId": "F3CD6886-D8D0-4FEE-B93E-1B73239673DE",
    "AutoSnapshotPolicyId": "sp-bp12m37ccmxvbmi5****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	ParameterInvalid	The specified RegionId parameter is invalid.	The error message returned because the specified regionId parameter is invalid.
403	ParameterInvalid	The specified RepeatWeekDays parameter is invalid.	The error message returned because the specified repeatWeekDays parameter is invalid.
403	ParameterInvalid	The specified TimePoints parameter is invalid.	The error message returned because the specified timePoints parameter is invalid.
403	ParameterInvalid	The specified RetentionDays parameter is invalid.	The error message returned because the specified retentionDays parameter is invalid.
403	AutoSnapshotPolicy.QuotaExceed	The maximum number of automatic snapshot policy has been reached.	The error message returned because the maximum number of automatic snapshot policies has been reached.
400	DiskCategory.OperationNotSupported	The type of the specified disk does not support creating a snapshot.	The error message returned because the operation is not supported by the current disk category.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.

2.1.2.1.8.8. DeleteAutoSnapshotPolicy

You can call this operation to delete an automatic snapshot policy. After an automatic snapshot policy is deleted, the policy will no longer be applied to the disks that it previously took effect on.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteAutoSnapshotPolicy	The operation that you want to perform. Set the value to DeleteAutoSnapshotPolicy.
autoSnapshotPolicyId	String	Yes	sp-bp12m37ccmxvbmi5****	The ID of the automatic snapshot policy. You can call the DescribeAutoSnapshotPolicies operation to query available automatic snapshot policies.
regionId	String	Yes	cn-qingdao-env17-d01	The region ID of the automatic snapshot policy. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request. Every response returns a unique request ID regardless of whether the call is successful.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteAutoSnapshotPolicy
&autoSnapshotPolicyId=sp-bp12m37ccmxvbmi5****
&regionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteAutoSnapshotPolicyResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</DeleteAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	ParameterInvalid	The specified automatic snapshot policy does not exist.	The error message returned because the specified autoSnapshotPolicyID parameter does not exist.
404	ParameterInvalid	The specified automatic snapshot policy does not exist in the region.	The error message returned because the specified automatic snapshot policy does not exist in the current region.

2.1.2.1.8.9. ModifyAutoSnapshotPolicyEx

You can call this operation to modify an automatic snapshot policy. After an automatic snapshot policy is modified, the modifications take effect immediately on the disks to which the policy is applied.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyAutoSnapshotPolicyEx	The operation that you want to perform. Set the value to ModifyAutoSnapshotPolicyEx.
autoSnapshotPolicyId	String	Yes	sp-bp12m37ccmxvbmi5****	The ID of the automatic snapshot policy. You can call the DescribeAutoSnapshotPolicies operation to query available automatic snapshot policies.
regionId	String	Yes	cn-qingdao-env17-d01	The region ID of the automatic snapshot policy. You can call the DescribeRegions operation to query the most recent region list.
autoSnapshotPolicyName	String	No	test-autoSnapshotPolicyName	The name of the automatic snapshot policy. If this parameter is not specified, the original name is retained.

Parameter	Type	Required	Example	Description
timePoints	String	No	["0", "1"]	The point in time at which to create automatic snapshots. Unit: hours. Valid values: 0 to 23. These values correspond to the hours of the day from 00:00 to 23:00. 1 indicates 01:00. To schedule multiple automatic snapshots to be created for a disk in a day, you can set timePoints to a JSON array that consists of multiple values. • You can specify up to 24 values in the array. • Separate the values in array with commas (,). Example: ["0", "1", ... "23"].
repeatWeekdays	String	No	["1", "7"]	The days of the week on which to create automatic snapshots. Valid values: 1 to 7, which correspond to Monday to Sunday. 1 indicates Monday. To schedule multiple automatic snapshots to be created for a disk in a week, you can set repeatWeekdays to a JSON array that consists of multiple values. • You can specify up to seven values in the array. • Separate the values in the array with commas (,). Example: ["1", "2", ... "7"].
retentionDays	Integer	No	30	The number of days for which to retain automatic snapshots. Valid values: • -1: Automatic snapshots are permanently retained. • 1 to 65536: Automatic snapshots are retained for a specified number of days.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyAutoSnapshotPolicyEx
&autoSnapshotPolicyId=sp-bp12m37ccmxvbmi5****
&regionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyAutoSnapshotPolicyResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ModifyAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	ParameterInvalid	The specified automatic snapshot policy does not exist.	The error message returned because the specified automatic snapshot policy does not exist.
404	ParameterInvalid	The specified automatic snapshot policy does not exist in the region.	The error message returned because the specified automatic snapshot policy does not exist in the current region.
403	ParameterInvalid	The specified RegionId parameter is invalid.	The error message returned because the specified regionId parameter is invalid.
403	ParameterInvalid	The specified RepeatWeekDays parameter is invalid.	The error message returned because the specified repeatWeekDays parameter is invalid.
403	ParameterInvalid	The specified TimePoints parameter is invalid.	The error message returned because the specified timePoints parameter is invalid.

HTTP status code	Error code	Error message	Description
403	ParameterInvalid	The specified AutoSnapshotPolicyId is invalid.	The error message returned because the specified autoSnapshotPolicyId parameter is invalid.
403	ParameterInvalid	The specified RetentionDays parameter is invalid.	The error message returned because the specified retentionDays parameter is invalid.

2.1.2.1.8.10. ModifySnapshotAttribute

You can call this operation to modify the name or description of a snapshot.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySnapshotAttribute	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set this parameter to ModifySnapshotAttribute.
SnapshotId	String	Yes	s-923FE2B***	The ID of the snapshot.
SnapshotName	String	No	NewSnapshotName-EcsGuideTest	The new name of the snapshot. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://. It also cannot start with auto because snapshot names that start with auto are recognized as automatic snapshots.

Parameter	Type	Required	Example	Description
Description	String	No	NewSnapshotDescription-EcsGuideTest	The new description of the snapshot. The description must be 2 to 256 characters in length and cannot start with http:// or https://.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifySnapshotAttribute
&SnapshotName=NewSnapshotName-EcsGuideTest
&Description=NewSnapshotDescription-EcsGuideTest
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySnapshotAttributeResponse>
            <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
</ModifySnapshotAttributeResponse>
```

`JSON` format

```
{
    "RequestId":"C8B26B44-0189-443E-9816-D951F59623A9"
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
404	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidSnapshotName.Malformed	The specified SnapshotName is wrongly formed.	The error message returned because the specified SnapshotName parameter is invalid.
400	NoAttributeToModify	No attribute to be modified in this request.	The error message returned because no attributes of the specified snapshot are modified.
404	InvalidSnapshotId.NotFound	The specified SnapshotId does not exist.	The error message returned because the specified SnapshotId parameter does not exist.

2.1.2.1.8.11. DescribeAutoSnapshotPolicyEX

You can call this operation to query the automatic snapshot policies that you have created.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAutoSnapshotPolicyEx	The operation that you want to perform. Set the value to DescribeAutoSnapshotPolicyEx.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the automatic snapshot policy. You can call the DescribeRegions operation to query the most recent region list.
AutoSnapshotPolicyId	String	No	sp-bp67acfmxazb4p****	The ID of the automatic snapshot policy.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1
PageSize	Integer	No	1	The number of entries to return on each page. Valid values: 1 to 100 Default value: 10
Tag.N.Key	String	No	TestKey	The key of tag N of the automatic snapshot policy. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	TestValue	The value of tag N of the automatic snapshot policy. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.

Response parameters

Parameter	Type	Example	Description
AutoSnapshotPolicies	Array		The collection of details about automatic snapshot policies.
AutoSnapshotPolicy			
AutoSnapshotPolicyId	String	sp-bp67acfmxazb4p****	The ID of the automatic snapshot policy.
AutoSnapshotPolicyName	String	test-AutoSnapshotPolicyName	The name of the automatic snapshot policy.

Parameter	Type	Example	Description
CopiedSnapshotsRetentionDays	Integer	0	Note This parameter is not supported.
CreationTime	String	2014-04-21T12:08:52Z	The time when the automatic snapshot policy was created. The time follows the ISO 8601 standard in the yyyy-MM-ddThh:mm:ssZ format. The time is displayed in UTC.
DiskNums	Integer	1	The number of disks to which the automatic snapshot policy was applied.
EnableCrossRegionCopy	Boolean	false	Note This parameter is not supported.
RegionId	String	cn-qingdao-env17-d01	The region ID of the automatic snapshot policy.
RepeatWeekdays	String	["6"]	The days of the week on which to create automatic snapshots. Valid values: 1 to 7, which correspond to the days of the week. 1 indicates Monday. One or more days can be specified.
RetentionDays	Integer	30	The number of days for which to retain an automatic snapshot. Valid values: • -1: The automatic snapshot is retained permanently. • 1 to 65536: The automatic snapshot is retained for the specified number of days.
Status	String	Normal	The status of the automatic snapshot policy. Valid values: • Normal • Expire
Tags	Array		The tags of the automatic snapshot policy.
Tag			

Parameter	Type	Example	Description
TagKey	String	TestKey	The tag key of the automatic snapshot policy.
TagValue	String	TestValue	The tag value of the automatic snapshot policy.
TargetCopyRegions	String	test	**Note** This parameter is not supported.
TimePoints	String	["4", "19"]	The points in time at which to create automatic snapshots. The least interval at which snapshots can be created is one hour. Valid values: 0 to 23, which correspond to the hours of the day from 00:00 to 23:00. 1 indicates 01:00. The value is a JSON array that consists of multiple points in time. Example: `["0", "1", ... "23"]`. You can specify a maximum of 24 points in time. Separate the points in time with commas (,).
VolumeNums	Integer	2	The number of extended volumes to which this policy is applied.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	2	The total number of automatic snapshot policies.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeAutoSnapshotPolicyEx
&RegionId=cn-qingdao-env17-d01
&AutoSnapshotPolicyId=sp-bp67acfmxazb4p****
&PageNumber=1
&PageSize=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAutoSnapshotPolicyResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>2</TotalCount>
      <AutoSnapshotPolicies>
            <AutoSnapshotPolicy>
                  <CreationTime>2019-01-22 11:38:08</CreationTime>
                  <Status>Normal</Status>
                  <DiskNums>1</DiskNums>
                  <AutoSnapshotPolicyName>test-AutoSnapshotPolicyName</AutoSnapshotPolicyNa
me>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <VolumeNums>2</VolumeNums>
                  <RetentionDays>30</RetentionDays>
                  <TimePoints>["0"]</TimePoints>
                  <AutoSnapshotPolicyId>sp-bp67acfmxazb4p****</AutoSnapshotPolicyId>
                  <RepeatWeekdays>["7"]</RepeatWeekdays>
                  <Tags>
                        <Tag>
                              <TagKey>Test</TagKey>
                              <TagValue>Test</TagValue>
                        </Tag>
                  </Tags>
            </AutoSnapshotPolicy>
      </AutoSnapshotPolicies>
      <PageSize>1</PageSize>
      <RequestId>CC323EDF-BBB7-420F-BCD1-D9B9D2E9D424</RequestId>
</DescribeAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 2,
    "AutoSnapshotPolicies": {
        "AutoSnapshotPolicy": [
            {
                "CreationTime": "2019-01-22 11:38:08",
                "Status": "Normal",
                "DiskNums": 1,
                "AutoSnapshotPolicyName": "test-AutoSnapshotPolicyName",
                "RegionId": "cn-qingdao-env17-d01",
                "VolumeNums": 2,
                "RetentionDays": 30,
                "TimePoints": "[\"0\"]",
                "AutoSnapshotPolicyId": "sp-bp67acfmxazb4p****",
                "RepeatWeekdays": "[\"7\"]",
                "Tags": {
                    "Tag": [
                        {
                            "TagKey": "Test",
                            "TagValue": "Test"
                        }
                    ]
                }
            }
        ]
    },
    "PageSize": 1,
    "RequestId": "CC323EDF-BBB7-420F-BCD1-D9B9D2E9D424"
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.

2.1.2.1.8.12. ApplyAutoSnapshotPolicy

You can call this operation to apply an automatic snapshot policy to one or more disks. If you apply an automatic snapshot policy to a disk that already has an automatic snapshot policy, the new policy replaces the original policy to take effect on the disk.

Description

- Each disk can have only one automatic snapshot policy applied.
- A single automatic snapshot policy can be applied to multiple disks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ApplyAutoSnapshotPolicy	The operation that you want to perform. Set the value to ApplyAutoSnapshotPolicy.
regionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the automatic snapshot policy and the disks belong. You can call the DescribeRegions operation to query the most recent region list.
autoSnapshotPolicyId	String	Yes	sp-bp12m37ccmxvbmi5****	The ID of the automatic snapshot policy to apply.
diskIds	String	Yes	["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", "d-bp1btgnlb4lgdzoi****"]	The IDs of disks to which you want to apply the automatic snapshot policy. The value is a JSON array that consists of disk IDs. Separate multiple disk IDs with commas (,).

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ApplyAutoSnapshotPolicy
&autoSnapshotPolicyId=sp-bp12m37ccmxvbmi5****
&diskIds=["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", "d-bp1btgnlb4lgdzoi****"]
&regionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ApplyAutoSnapshotPolicyResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</ApplyAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	ParameterInvalid	The specified automatic snapshot policy does not exist.	The error message returned because the specified autoSnapshotPolicyId parameter does not exist.
404	ParameterInvalid	The specified automatic snapshot policy does not exist in the region.	The error message returned because the specified autoSnapshotPolicyId parameter does not exist in the current region.
404	InvalidDiskId.NotFound	The specified disk does not exist in the region.	The error message returned because the specified disk does not exist in the current region.
403	ParameterInvalid	The specified RegionId parameter is invalid.	The error message returned because the specified RegionId parameter is invalid.
403	ParameterInvalid	The specified AutoSnapshotPolicyId parameter is invalid.	The error message returned because the specified autoSnapshotPolicyId parameter is invalid.
403	ParameterInvalid	The specified DiskIds are invalid.	The error message returned because the specified diskIds parameter is invalid.
400	DiskCategory.OperationNotSupported	The type of the specified disk does not support creating a snapshot.	The error message returned because the operation is not supported by the current disk category.

HTTP status code	Error code	Error message	Description
400	PartofDiskCategory.OperationNotSupported	The types of some disks in the disk list do not support creating snapshots.	The error message returned because some of the specified disks does not support this operation.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.

2.1.2.1.8.13. CancelAutoSnapshotPolicy

You can call this operation to disable the automatic snapshot policy for one or more disks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CancelAutoSnapshotPolicy	The operation that you want to perform. Set the value to CancelAutoSnapshotPolicy.
diskIds	String	Yes	["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", "d-bp1btgnlb4lgdzoi****"]	The IDs of disks. To disable an automatic snapshot policy for multiple disks, you can set this parameter to a JSON array that consists of multiple disk IDs in the format of ["dxxxxxxxxx", "dyyyyyyyyy", ... "dzzzzzzzzz"]. Separate multiple disk IDs with commas (,).
regionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the automatic snapshot policy and the disks belong. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request. Every response returns a unique request ID regardless of whether the call is successful.

Examples

Sample requests

```
https://ecs.example.com/?Action=CancelAutoSnapshotPolicy
&diskIds=["d-bp198f7xn673w2rw****", "d-bp12te2l9m0170wc****", "d-bp1btgnlb4lgdzoi****"]
&regionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CancelAutoSnapshotPolicyResponse>
      <RequestId>F3CD6886-D8D0-4FEE-B93E-1B73239673DE</RequestId>
</CancelAutoSnapshotPolicyResponse>
```

`JSON` format

```
{
    "RequestId":"F3CD6886-D8D0-4FEE-B93E-1B73239673DE"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	ParameterInvalid	The specified RegionId parameter is invalid.	The error message returned because the specified regionId parameter is invalid.
403	ParameterInvalid	The specified DiskIds are invalid.	The error message returned because the specified diskIds parameter is invalid.
404	InvalidDiskId.NotFound	The specified DiskIds are not found.	The error message returned because the specified diskIds parameter does not exist.

2.1.2.1.9. Images

2.1.2.1.9.1. CreateImage

You can call this operation to create a custom image. The created custom image can be used to create ECS instances (RunInstances) and replace system disks (ReplaceSystemDisk).

Description

When you call this operation, take note of the following items:

- The created custom image can be used only when it is in the Available (Available) state.
- If the API response contains `{"OperationLocks": {"LockReason" : "security"}}` when you query information of an instance, the instance is locked for security reasons and all operations are prohibited on it.

You can call the CreateImage operation to create a custom image by using one of the following methods. The request parameters have the following priorities: `InstanceId` > `DiskDeviceMapping` > `SnapshotId`. If your request contains two or more parameters, the custom image is created based on the parameter with a higher priority by default.

- **Method 1**: Create a custom image from an instance. You only need to specify the instance ID (`InstanceId`). The instance must be in the Running (`Running`) or Stopped (`Stopped`) state. After the CreateImage operation is called, a new snapshot is created for each disk of the instance.
- **Method 2**: Create a custom image from the system disk snapshot of an ECS instance. You only need to specify the ID of the system disk snapshot (`SnapshotId`). The specified snapshot cannot be created on or before July 15, 2013.
- **Method 3**: Create a custom image from multiple disk snapshots. You must specify the data mapping between the disks corresponding to the snapshots (`DiskDeviceMapping` parameters).

When you use method 3 to create a custom image, take note of the following items:

- You can specify only one system disk snapshot. The device name of the system disk must be /dev/xvda.
- You can specify multiple data disk snapshots. The device names of the data disks are automatically allocated by the system. The device names are unique and ascend from /dev/xvdb to /dev/xvdz.
- `SnapshotId` may not be specified. In this case, an empty data disk with a specific size is created.
- The specified snapshot cannot be created on or before July 15, 2013.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateImage	The operation that you want to perform. Set the value to CreateImage.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the custom image. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
DiskDeviceMapping.N.SnapshotId	String	No	s-bp17441ohwkdca0****	The ID of snapshot N that is used to create disk N specified by DiskDeviceMapping.N.Size in the custom image.

DiskDeviceMapping.N.Size	Integer	No	2000	The size of disk N in the custom image. Unit: GiB. The valid values and default value of DiskDeviceMapping.N.Size depend on DiskDeviceMapping.N.SnapshotId.
				• If no corresponding snapshot IDs are specified in the DiskDeviceMapping.N.SnapshotId value, the following valid values and default value are available for DiskDeviceMapping.N.Size:
				  ◦ For basic disks, the valid values are 5 to 2000, and the default value is 5.
				  ◦ For other disk categories, the valid values are 20 to 32768, and the default value is 20.
				• If a corresponding snapshot ID is specified in the DiskDeviceMapping.N.SnapshotId value, the value of DiskDeviceMapping.N.Size must be greater than or equal to the size of the specified snapshot. The default value of DiskDeviceMapping.N.Size is the size of the specified snapshot.

DiskDeviceMapping.N.Device	String	No	/dev/vdb	The device name of disk N in the custom image. Valid values: • For disk categories other than basic disks, such as standard SSDs, ultra disks, and enhanced SSDs: /dev/vda to /dev/vdz • For basic disks: /dev/xvda to /dev/xvdz

Parameter	Type	Required	Example	Description
DiskDeviceMapping.N.DiskType	String	No	system	The type of disk N in the custom image. You can set this parameter to create the system disk of the custom image from a data disk snapshot. If you do not set this parameter, the disk type is determined by the corresponding snapshot. Valid values: • system: system disk • data: data disk
SnapshotId	String	No	s-bp17441ohwkdca0****	The ID of the snapshot that is used to create the custom image.
InstanceId	String	No	i-bp1g6zv0ce8oghu7****	The ID of the instance.
ImageName	String	No	TestCentOS	The name of the image. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
Description	String	No	ImageTestDescription	The description of the image. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
Platform	String	No	CentOS	The distribution of the operating system for the system disk in the custom image. If you specify a data disk snapshot to create the system disk of the custom image, you must use the Platform parameter to determine the distribution of the operating system for the system disk. Default value: Others Linux. Valid values: • CentOS • Ubuntu • SUSE • OpenSUSE • RedHat • Debian • CoreOS • Aliyun Linux • Windows Server 2012 • Windows 7 • Customized Linux • Others Linux
Architecture	String	No	x86_64	The system architecture of the system disk. If you specify a data disk snapshot to create the system disk of the custom image, you must use the Architecture parameter to determine the system architecture of the system disk. Default value: x86_64. Valid values: • i386 • x86_64
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Parameter	Type	Required	Example	Description
Tag.N.value	String	No	null	The value of tag N of the custom image. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	null	The key of tag N of the custom image. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.
Tag.N.Key	String	No	KeyTest	The key of tag N of the custom image. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	ValueTest	The value of tag N of the custom image. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the custom image.

Response parameters

Parameter	Type	Example	Description
ImageId	String	m-bp146shijn7hujku****	The ID of the image.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateImage
&RegionId=cn-qingdao-env17-d01
&SnapshotId=s-bp17441ohwkdca0****
&ImageName=TestCentOS
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateImageResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
      <ImageId>m-bp146shijn7hujku****</ImageId>
</CreateImageResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "ImageId": "m-bp146shijn7hujku****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSnapshotId.NotFound	The specified SnapshotId does not exist.	The error message returned because the specified snapshot ID does not exist. Check whether the snapshot ID is correct.
400	InvalidImageName.Malformed	The specified Image name is wrongly formed.	The error message returned because the specified ImageName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidImageName.Duplicated	The specified Image name has already bean used.	The error message returned because the specified image name already exists.

HTTP status code	Error code	Error message	Description
400	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidImageVersion.Malformed	The specified ImageVersion is wrongly formed.	The error message returned because the specified image version is invalid or you are not authorized to use the snapshot.
403	InvalidSnapshotId.NotReady	The current status of the DiskDeviceMapping.n.SnapshotId or SnapshotId does not support this operation.	The error message returned because the operation is not supported while the specified snapshot is in the current state.
403	InvalidSnapshot.TooOld	This operation is denied because the specified snapshot by DiskDeviceMapping.n.SnapshotId or SnapshotId is created before 2013-07-15.	The error message returned because the operation is not supported while the snapshot specified by the DiskDeviceMapping.N.SnapshotId or SnapshotId parameter was created before July 15, 2013.
403	OperationDenied	The specified snapshot is not allowed to create image.	The error message returned because the specified snapshot cannot be used to create images.
403	QuotaExceed.Image	The Image Quota exceeds.	The error message returned because the maximum number of custom images has been reached.
403	OperationDenied	The specified snapshot is not from system disk.	The error message returned because the specified snapshot was not created from a system disk.
403	InvalidParamter.Conflict	The specified same token is trying to make requests with different parameters.	The error message returned because the same token is used to make requests with different parameters.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.

HTTP status code	Error code	Error message	Description
400	IncorrectInstanceStatus	The current status of the instance does not support this operation.	The error message returned because the operation is not supported while the instance is in the current state.
400	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
400	InvalidDevice.Malformed	The specified parameter DiskDeviceMapping.n.Device is not valid.	The error message returned because the specified DiskDeviceMapping.N.Device parameter is invalid.
400	MissingParameter	The input parameter SnapshotId or InstanceId or DiskDeviceMapping that is mandatory for processing this request is not supplied.	The error message returned because SnapshotId, InstanceId or parameters that contain DiskDeviceMapping are not specified.
400	InvalidSize.ValueNotSupported	The specified parameter DiskDeviceMapping.n.Size beyond the permitted range.	The error message returned because the specified DiskDeviceMapping.N.Size parameter is not within the permitted range.
400	InvalidDevice.InUse	The specified parameter DiskDeviceMapping.n.Device has been occupied.	The error message returned because device names specified in the DiskDeviceMapping.N.Device value already exists.
400	OperationDenied	The specified parameter DiskDeviceMapping.n.SnapshotId does not contain system disk snapshot.	The error message returned because the specified DiskDeviceMapping.N.SnapshotID parameter does not contain a system disk snapshot ID.
400	OperationDenied	The specified parameter DiskDeviceMapping.n.SnapshotId contains two or more system disk snapshots.	The error message returned because the specified DiskDeviceMapping.N.SnapshotID parameter already contains system disk snapshot IDs.
400	InvalidDiskCategory.CreateImage	The specified diskCategory is not allowed to create image.	The error message returned because the operation is not supported by the specified disk category.

HTTP status code	Error code	Error message	Description
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidAccountStatus.SnapshotServiceUnavailable	Snapshot service has not been opened yet.	The error message returned because the operation is not supported while the snapshot service is not activated.
403	UserNotInTheWhiteList	The user is not in the white list of create image by data disk snapshot.	The error message returned because you are not authorized to create an image from data disk snapshots. Try again when you are authorized to do so.
400	InvalidArchitecture.Malformed	The specified Architecture is wrongly formed.	The error message returned because the specified Architecture parameter is invalid.
400	InvalidPlatform.Malformed	The specified Platform is wrongly formed.	The error message returned because the specified Platform parameter is invalid.
400	OperationDenied	Not support creating system image from an encrypted snapshot/disk.	The error message returned because an encrypted disk or snapshot cannot be used to create custom images.
400	InvalidParameter.AllEmpty	%s	The error message returned because no parameters are specified. Specify required parameters.
403	IncorrectDiskStatus.Invalid	Device status is invalid, please restart instance and try again.	The error message returned because the device status is invalid. Restart the instance and try again.
403	OperationDenied.InvalidSnapshotCategory	%s	The error message returned because the operation is not supported by the snapshot type.
403	QuotaExceed.Snapshot	The snapshot quota exceeds.	The error message returned because the maximum number of snapshots has been reached. To store new snapshots, delete snapshots that are no longer needed.

HTTP status code	Error code	Error message	Description
403	IncorrectDiskStatus.Transferring	The specified device is transferring, you can retry after the process is finished.	The error message returned because the specified disk is being migrated. Wait until the disk is migrated and try again.
403	IncorrectDiskStatus	The current disk status does not support this operation.	The error message returned because the operation is not supported while the disk is in the current state. Ensure that the disk is available and you have no overdue payment for it.
403	IncorrectDiskStatus.CreatingSnapshot	A previous snapshot creation is in process.	The error message returned because another snapshot is being created. Wait until the snapshot is created and try again.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
500	InternalError	The process of creating snapshot has failed due to some unknown error.	The error message returned because the snapshot has failed to be created.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.

HTTP status code	Error code	Error message	Description
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.

2.1.2.1.9.2. DescribeImages

You can call this operation to query available images.

Description

- You can query your custom images and public images provided by Apsara Stack.
- This operation supports paged query. The response contains the total number of available images and the images on the returned page. Ten entries are displayed on each page by default.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeImages	The operation that you want to perform. Set the value to DescribeImages.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the image. You can call the DescribeRegions operation to query the most recent region list.
Status	String	No	Available	The status of the image. Default value: Available. Valid values: • Creating: The image is being created. • Waiting: The image is waiting to be processed. • Available: The image is available. • UnAvailable: The image is unavailable. • CreateFailed: The image failed to be created. Separate multiple values with commas (,).
ImageId	String	No	m-bp1g7004ksh0oeuc3***	The ID of the image.

Parameter	Type	Required	Example	Description
ShowExpired	Boolean	No	false	Specifies whether the subscription image has expired. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
SnapshotId	String	No	s-bp17ot2q7x72ggtwr***	The ID of the snapshot from which the custom image was created.
ImageName	String	No	Test	The name of the image.
ImageOwnerAlias	String	No	self	The source of the image. Valid values: • system: public images provided by Apsara Stack. • self: your custom images. This parameter is empty by default, which indicates that the results matching system and self are returned.
InstanceType	String	No	ecs.g5.large	The instance type for which the image can be used.
IsSupportIoOptimized	Boolean	No	true	Specifies whether the image can be used on I/O optimized instances.
IsSupportCloudinit	Boolean	No	true	Specifies whether the image supports cloud-init.
OSType	String	No	linux	The operating system type of the image. Valid values: • windows • linux
Architecture	String	No	i386	The image architecture. Valid values: • i386 • x86_64

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	1	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.
Usage	String	No	instance	Specifies whether the image is running on an ECS instance. Valid values: • instance: The image is already in use and running on an ECS instance. • none: The image is not in use.
Tag.N.value	String	No	null	The value of tag N of the image. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	null	The key of tag N of the image. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.
Tag.N.Key	String	No	Test	The key of tag N of the image. Valid values of N: 1 to 20.
Tag.N.Value	String	No	Test	The value of tag N of the image. Valid values of N: 1 to 20.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are set. If the check fails, the corresponding error is returned. If the check succeeds, the DryRunOperation error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made. Default value: false.
ActionType	String	No	CreateEcs	The scenario in which the image will be used. Default value: CreateEcs. Valid values: • CreateEcs: instance creation • ChangeOS: replacement of the system disk or operating system
Filter.N.Key	String	No	CreationStartTime	The key of filter condition N.
Filter.N.Value	String	No	2017-12-05T22:40:00Z	The value of filter condition N.
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which the custom image belongs.

Response parameters

Parameter	Type	Example	Description
Images	Array		The collection of details about images.
Image			

Parameter	Type	Example	Description
Architecture	String	x86_64	The image architecture. Valid values: • i386 • x86_64
CreationTime	String	2018-01-10T01:01:10Z	The time when the image was created.
Description	String	Archive log for Oracle	The description of the image.
DiskDeviceMappings	Array		The mappings between disks and snapshots under the image.
DiskDeviceMapping			
Device	String	/dev/xvdb	The device information of the disk, such as /dev/xvdb. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
Format	String	qcow2	The format of the image.
ImportOSSBucket	String	testEcsImport	The OSS bucket where an imported image is stored.
ImportOSSObject	String	imageImport	The OSS object that corresponds to an imported image.
Progress	String	32%	The progress of an image copying task.
RemainTime	Integer	213	The remaining time for an image copying task. Unit: seconds.

Parameter	Type	Example	Description
Size	String	80	The size of the disk.
SnapshotId	String	s-bp17ot2q7x72ggtwr***	The ID of the snapshot.
Type	String	custom	The type of the image.
ImageFamily	String	as-hangzhou-game-01	**Note** This parameter is not supported.
ImageId	String	m-bp1g7004ksh0oeuc3***	The ID of the image.
ImageName	String	Test	The name of the image.
ImageOwnerAlias	String	self	The source of the image. Valid values: • system: public images. • self: your custom images. • marketplace: Alibaba Cloud Marketplace images.
ImageVersion	String	2	The version of the image.
IsCopied	Boolean	false	Indicates whether the image is a copy of another image.
IsSelfShared	String	true	Indicates whether the custom image was shared to other Apsara Stack tenant accounts.
IsSubscribed	Boolean	false	Indicates whether you have subscribed to the image corresponding to the specified product code.
IsSupportCloudinit	Boolean	true	Indicates whether the image supports cloud-init.

Parameter	Type	Example	Description
IsSupportIoOptimized	Boolean	true	Indicates whether the image can be used on I/O optimized instances.
OSName	String	Aliyun Linux 2.1903	The Chinese name of the operating system.
OSNameEn	String	Aliyun Linux 2.1903	The English name of the operating system.
OSType	String	Linux	The type of the operating system. Valid values: • windows • linux
Platform	String	Aliyun Linux	The platform of the operating system.
ProductCode	String	jxsc000204	Note This parameter is not supported.
Progress	String	100	The image creation progress. Unit: percent (%).
ResourceGroupId	String	rg-bp67acfmxazb4ph***	The ID of the resource group to which the image belongs.
Size	Integer	80	The size of the image. Unit: GiB.
Status	String	Available	The status of the image. Valid values: • UnAvailable: The image is unavailable. • Available: The image is available. • Creating: The image is being created. • CreateFailed: The image failed to be created.
Tags	Array		Tags of the image.
Tag			
TagKey	String	Test	The tag key of the image.

Parameter	Type	Example	Description
TagValue	String	Test	The tag value of the image.
Usage	String	none	The referenced resource type. Valid values: • instance: One or more ECS instances were created from the image. • none: No ECS instance was created from the image.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RegionId	String	cn-qingdao-env17-d01	The region ID of the image.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	24	The total number of images.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeImages
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeImagesResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>61</TotalCount>
      <PageSize>1</PageSize>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <RequestId>66189103-EDB2-43E2-BB60-BFF2B62F4EB8</RequestId>
      <Images>
            <Image>
                  <ImageId>m-bp1g7004ksh0oeuc3***</ImageId>
                  <Description>Archive log for Oracle</Description>
                  <OSNameEn>Windows Server  2016 Data Center Edition 64bit Chinese Edition<
/OSNameEn>
                  <ResourceGroupId></ResourceGroupId>
                  <OSType>windows</OSType>
                  <Architecture>x86_64</Architecture>
                  <OSName>Windows Server  2016 Datacenter Edition 64-bit (English)</OSName>
                  <DiskDeviceMappings>
                        <DiskDeviceMapping>
                              <ImportOSSObject></ImportOSSObject>
                              <Format></Format>
                              <Device>/dev/xvda</Device>
                              <Type>system</Type>
                              <SnapshotId>s-bp17ot2q7x72ggtwr***</SnapshotId>
                              <ImportOSSBucket></ImportOSSBucket>
                              <Progress></Progress>
                              <Size>60</Size>
                        </DiskDeviceMapping>
                  </DiskDeviceMappings>
                  <ImageOwnerAlias>self</ImageOwnerAlias>
                  <Progress>100%</Progress>
                  <IsSupportCloudinit>true</IsSupportCloudinit>
                  <Usage>none</Usage>
                  <CreationTime>2019-11-15T06:07:05Z</CreationTime>
                  <ImageVersion></ImageVersion>
                  <Tags>
                        <Tag>
                              <TagValue>Oracle</TagValue>
                              <TagKey>DTS</TagKey>
                        </Tag>
                  </Tags>
                  <Status>Available</Status>
                  <ImageName>Oracle_DTS</ImageName>
                  <IsSupportIoOptimized>true</IsSupportIoOptimized>
                  <IsSelfShared>False</IsSelfShared>
                  <IsCopied>false</IsCopied>
                  <IsSubscribed>false</IsSubscribed>
                  <Platform>Windows Server 2016</Platform>
                  <Size>60</Size>
            </Image>
      </Images>
</DescribeImagesResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 61,
    "PageSize": 1,
    "RegionId": "cn-qingdao-env17-d01",
    "RequestId": "66189103-EDB2-43E2-BB60-BFF2B62F4EB8",
    "Images": {
        "Image": [
            {
                "ImageId": "m-bp1g7004ksh0oeuc3***",
                "Description": "Archive log for Oracle",
                "OSNameEn": "Windows Server  2016 Data Center Edition 64bit Chinese Edition
",
                "ResourceGroupId": "",
                "OSType": "windows",
                "Architecture": "x86_64",
                "OSName":"Windows Server  2016 Datacenter edition 64-bit (English)",
                "DiskDeviceMappings": {
                    "DiskDeviceMapping": [
                        {
                            "ImportOSSObject": "",
                            "Format": "",
                            "Device": "/dev/xvda",
                            "Type": "system",
                            "SnapshotId": "s-bp17ot2q7x72ggtwr***",
                            "ImportOSSBucket": "",
                            "Progress": "",
                            "Size": "60"
                        }
                    ]
                },
                "ImageOwnerAlias": "self",
                "Progress": "100%",
                "IsSupportCloudinit": true,
                "Usage": "none",
                "CreationTime": "2019-11-15T06:07:05Z",
                "ImageVersion": "",
                "Tags": {
                    "Tag": [
                        {
                            "TagValue": "Oracle",
                            "TagKey": "DTS"
                        }
                    ]
                },
                "Status": "Available",
                "ImageName": "Oracle_DTS",
                "IsSupportIoOptimized": true,
                "IsSelfShared": "False",
                "IsCopied": false,
                "IsSubscribed": false,
                "Platform": "Windows Server 2016",
                "Size": 60
            }
```

```
            ]
        }
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidImageOwnerAlias.ValueNotSupported	The specified ImageOwnerAlias value is not supported.	The error message returned because the specified ImageOwnerAlias parameter is invalid.
400	InvalidParamter	Invalid Parameter	The error message returned because a specified parameter is invalid.
404	InvalidFilterKey.NotFound		The error message returned because the specified start time or end time is invalid.
404	InvalidUsage	The specifed Usage is not valid	The error message returned because the specified Usage parameter is invalid.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or you are not authorized to manage instances of the specified instance type.
404	InvalidOSType	The specifed OSType is not valid	The error message returned because the specified OSType parameter is invalid.
404	InvalidArchitecture	The specifed Architecture is not valid	The error message returned because the specified Architecture parameter does not exist.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.9.3. ModifyImageAttribute

You can call this operation to modify the name or description of a custom image.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyImageAttribute	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to ModifyImageAttribute.
ImageId	String	Yes	m-imageid1	The ID of the custom image.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the custom image. You can call the DescribeRegions operation to query the most recent region list.
ImageName	String	No	Test	The name of the custom image. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default, which indicates that the original name is retained.

Parameter	Type	Required	Example	Description
Description	String	No	FinanceDept	The description of the custom image. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default, which indicates that the original description is retained.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyImageAttribute
&ImageId=m-imageid1
&RegionId=cn-qingdao-env17-d01
&ImageName=Test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyImageAttributeResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
</ModifyImageAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9"
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	InvalidImageName.Malformed	The specified Image name is wrongly formed.	The error message returned because the specified ImageName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	MissingParameter	The input parameter "RegionId" that is mandatory for processing this request is not supplied.	The error message returned because the required RegionId parameter is not specified.
400	InvalidImageName.Duplicated	The specified Image name has already bean used.	The error message returned because the specified image name already exists.
400	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.

2.1.2.1.9.4. DeleteImage

You can call this operation to delete a custom image.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteImage	The operation that you want to perform. Set the value to DeleteImage.
ImageId	String	Yes	m-bp67acfmxazb4ph***	The ID of the image. If the specified custom image does not exist, the request will be ignored.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the custom image. You can call the DescribeRegions operation to query the most recent region list.
Force	Boolean	No	false	Specifies whether to forcibly delete the custom image. Valid values: • true: forcibly deletes the custom image, regardless of whether the image is in use by other instances. • false: verifies that the image is not in use by other instances before the image is deleted. Default value: false.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteImage
&ImageId=m-bp67acfmxazb4ph***
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteImageResponse>
       <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteImageResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	ImageUsingByInstance	The specified image has been used to create instances.	The error message returned because the specified image has been used to create instances and cannot be deleted.
403	ImageUseShared	The specified image has been shared to others.	The error message returned because the specified image is shared to other accounts.
403	OperationDenied.ImageCopying	The Image is coping.	The error message returned because the specified image is being copied. Try again later.
403	ImageIsCreating	The specified image is being created.	The error message returned because the specified image is being created.
403	ImageIsImporting	The specified Image is importing.	The error message returned because the specified image is being imported and cannot be deleted.
403	ImageIsExporting	The specified Image is exporting. Please cancel task first.	The error message returned because the specified image is being exported. Cancel the export task first.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.

2.1.2.1.9.5. CopyImage

You can call this operation to copy a custom image from one region to another. You can deploy or copy instances across regions by copying images.

Description

You can use the image copy to create ECS instances (RunInstances) or replace system disks of instances (ReplaceSystemDisk) in the destination region.

When you call this operation, take note of the following items:

- Only custom images that are in the Available (`Available`) state can be copied.
- You can copy only the images in your Apsara Stack tenant account. Images cannot be copied across accounts.
- When an image is being copied, you cannot delete the image copy by calling the DeleteImage operation, but you can cancel the copy task by calling the CancelCopyImage operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CopyImage	The operation that you want to perform. Set the value to CopyImage.
ImageId	String	Yes	m-bp1h46wfpjsjastc****	The ID of the source custom image (custom image to be copied).
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the source custom image. You can call the DescribeRegions operation to query the most recent region list.
DestinationRegionId	String	No	cn-shanghai-env17-d02	The ID of the destination region to which to copy the source custom image.
DestinationImageName	String	No	YourImageName	The name of the image copy. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
DestinationDescription	String	No	This is a description example.	The description of the image copy. It must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.
Encrypted	Boolean	No	false	Specifies whether to encrypt the image copy. Default value: false.
KMSKeyId	String	No	e522b26d-abf6-4e0d-b5da-04b7******3c	The ID of the key used to encrypt the image copy.

Response parameters

Parameter	Type	Example	Description
ImageId	String	m-bp1h46wfpjsjastd****	The ID of the image copy.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CopyImage
&ImageId=m-bp1h46wfpjsjastc****
&RegionId=cn-qingdao-env17-d01
&DestinationRegionId=cn-shanghai-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CopyImageResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
      <ImageId>m-bp1h46wfpjsjastd****</ImageId>
</CopyImageResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "ImageId": "m-bp1h46wfpjsjastd****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
401	InvalidAliUid.IsNull	The aliUid must not be null	The error message returned because the required aliUid parameter is not specified.

HTTP status code	Error code	Error message	Description
400	InvalidImageName.Malformed	The specified Image name is wrongly formed.	The error message returned because the specified DestinationImageName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://.
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are not authorized to access the specified resource.
400	InvalidImageName.Malformed	The specified destination Image name is wrongly formed.	The error message returned because the specified DestinationImageName parameter is invalid. For more information, see the description of the DestinationImageName parameter.
400	InvalidDescription.Malformed	The specified destination description is wrongly formed.	The error message returned because the specified DestinationDescription parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified DestinationDescription parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	SourceRegion.NotFound	The source region not found	The error message returned because the specified RegionId parameter does not exist.
400	DestinationRegion.NotFound	The destination region not found	The error message returned because the specified DestinationRegionId parameter does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
400	IncorrectImageStatus	The image not available.	The error message returned because the specified image is unavailable.
400	InvalidSnapshotId.NotFound	The specified SnapshotId does not exist.	The error message returned because the specified snapshot does not exist. Check whether the snapshot ID is correct.
400	InvalidImageName.Duplicated	The destination image is exist.	The error message returned because the specified image name already exists.
403	QuotaExceed.Image	The Image Quota exceeds.	The error message returned because the custom image quota has been used up.
403	QuotaExceed.Snapshot	The snapshot quota exceeds.	The error message returned because the maximum number of snapshots has been reached. To store new snapshots, delete snapshots that are no longer needed.
403	OperationDenied.ImageCopying	The Image are coping.	The error message returned because the source image is being copied. Try again later.
403	RegionNotSupportCopy	The region not support copy.	The error message returned because the specified source or destination region does not support image copying.
403	InvalidSnapshot.TooOld	This operation is denied because the specified snapshot is created before 2013-07-15.	The error message returned because the operation is rejected while the specified snapshot was created before July 15, 2013.
403	OperationDenied	The specified snapshot is not allowed to create image.	The error message returned because the specified snapshot cannot be used to create images.

HTTP status code	Error code	Error message	Description
403	IncorrectDestinationRegion	The destination region is not equal the target region.	The error message returned because the source region is the same as the destination region.
403	SizeExceed.Image	The image exceeds the maximum size. Please open a ticket to add the account to the white list.	The error message returned because the size of the image exceeds the upper limit. Contact customer service to request a quota increase.
403	OperationDeined.EncryptedSnapshot	The image contains encrypted snapshots, which do not support copying.	The error message returned because the specified image contains encrypted snapshots and cannot be copied.
403	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	OperationDenied.SameRegionOnly	The image shared from others can not be copied to another region directly.	The error message returned because you cannot copy images shared by other Apsara Stack tenant accounts to another region.
403	OperationDenied.NotPublished	The operation is denied because corresponding marketplace image is not published in destination region.	The error message returned because the image type is not supported in the destination region and the operation is rejected.
404	InvalidParameter.KMSKeyId.NotFound	The specified KMSKeyId does not exist.	The error message returned because the specified KMS key ID does not exist.
403	InvalidParameter.KMSKeyId.KMSUnauthorized	ECS service have no right to access your KMS.	The error message returned because ECS is not authorized to access your KMS resources.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidRegion.NotSupport	The specified region does not support byok.	The error message returned because the bring your own key (BYOK) feature is not supported in this region.

HTTP status code	Error code	Error message	Description
403	UserNotInTheWhiteList	The user is not in byok white list.	The error message returned because you are not in the BYOK whitelist. Try again when you are in the whitelist.
400	InvalidParameter.EncryptedIllegal	The specified parameter Encrypted must be true when kmsKeyId is not empty.	The error message returned because the encryption feature is not enabled after a KMS key ID is specified.

2.1.2.1.9.6. CancelCopyImage

You can call this operation to cancel an ongoing image copy (CopyImage) task.

Description

When you call this operation, take note of the following items:

- After you cancel the image copy task, the image copy created in the destination region is deleted, and the source image remains unchanged.
- If the image copy task is complete, the CancelCopyImage operation fails and an error is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CancelCopyImage	The operation that you want to perform. Set the value to CancelCopyImage.
ImageId	String	Yes	m-imageid1	The ID of the image being copied.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the image copy. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CancelCopyImage
&ImageId=m-imageid1
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CancelCopyImageResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
</CancelCopyImageResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account.
400	ImageCreatedNotFromCopy	The specified image is not the target image of a copy action.	The error message returned because the specified image ID is not the ID of an image that is being copied.
400	IncorrectImageStatus	The image is copied finished.	The error message returned because the image copy task is complete.
400	InvalidDescription.Malformed	The specified description is wrongly formed.	The error message returned because the specified description is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.

HTTP status code	Error code	Error message	Description
400	IncorrectImageStatus	The specified snapshot is not coping.	The error message returned because the specified snapshot is not being copied.
400	IncorrectImageStatus	The specified image is not coping.	The error message returned because the specified image is not being copied.
400	IncorrectImageStatus	The image has completed copy.	The error message returned because the image copy task is complete.
400	IncorrectImageStatus	The Image copy has been failed.	The error message returned because the specified image failed to be copied.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	CancelNotSupported	The specified image coping can not be cancelled.	The error message returned because the specified image copy task cannot be canceled.

2.1.2.1.9.7. ModifyImageSharePermission

You can call this operation to manage the share permission on a custom image. After you share a custom image to another Apsara Stack tenant account, the account can use the shared image to create ECS instances (RunInstances) or replace the system disks of ECS instances (ReplaceSystemDisk).

Description

When you call this operation, take note of the following items:

- You can share only your own custom images to other Apsara Stack tenant accounts.
- A custom image can be shared to a maximum of 10 Apsara Stack tenant accounts at a time. You can specify up to 10 Apsara Stack tenant account IDs in the AddAccount.N or RemoveAccount.N parameter. If you specify more than 10 account IDs, the parameter will be ignored.
- A single custom image can be shared to a maximum of 50 Apsara Stack tenant accounts.
- If an instance was created (RunInstances) from a shared image, this instance cannot be re-initialized (ReInitDisk) after the image owner unshares or deletes the image (DeleteImage).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyImageSharePermission	The operation that you want to perform. Set the value to ModifyImageSharePermission.
ImageId	String	Yes	m-imageid1	The ID of the custom image.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the custom image. You can call the DescribeRegions operation to query the most recent region list.
AddAccount.N	RepeatList	No	155780923***	The ID of Apsara Stack tenant account N to which to share the custom image. Valid values of N: 1 to 10. If the value of N is greater than 10, this parameter will be ignored.
RemoveAccount.N	RepeatList	No	155780923***	The ID of Apsara Stack tenant account N to which to unshare the custom image. Valid values of N: 1 to 10. If the value of N is greater than 10, this parameter will be ignored.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The request ID.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyImageSharePermission
&ImageId=m-imageid1
&RegionId=cn-qingdao-env17-d01
&AddAccount.1=155780923***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyImageSharePermissionResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
</ModifyImageSharePermissionResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter "RegionId" that is mandatory for processing this request is not supplied.	The error message returned because the required RegionId parameter is not specified.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account.
404	InvalidAccount.NotFound	The specified parameter "AddAccount.n" or "RemoveAccount.n" does not exist.	The error message returned because the specified AddAccount.N or RemoveAccount.N parameter does not exist.
404	InvalidAccount.Forbiden	The specified Account does not yourself.	The error message returned because you are trying to share the image to your own account.
403	QuotaExceed.ShareImage	The shared Image Quota exceeds.	The error message returned because the maximum number of custom images that can be shared has been reached.
403	QuotaExceed.ShareImageUser	The shared Image user Quota exceeds.	The error message returned because the maximum number of Apsara Stack tenant accounts to which a single image can be shared has been reached.
400	InvalidGroup.Malformed	The specified Group is wrongly formed.	The error message returned because the specified group does not exist.
403	InvalidImageId.BidMismatch	Cannot share image with other bid user.	The error message returned because images cannot be shared among users of different carriers.

HTTP status code	Error code	Error message	Description
403	OperationDeined.EncryptedSnapshot	The image contains encrypted snapshots, which do not support share.	The error message returned because the specified image contains encrypted snapshots and cannot be shared.

2.1.2.1.9.8. DescribeImageSharePermission

You can call this operation to query the accounts to which a custom image is shared. The response can be displayed by page. By default, ten entries are displayed on each page.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeImageSharePermission	The operation that you want to perform. Set the value to DescribeImageSharePermission.
ImageId	String	Yes	m-282dz****	The ID of the custom image.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the custom image. You can call the DescribeRegions operation to query the most recent region list.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10

Response parameters

Parameter	Type	Example	Description
Accounts	Array		The Apsara Stack tenant accounts.
Account			

Parameter	Type	Example	Description
AliyunId	String	123456****	The ID of the Apsara Stack tenant account.
ImageId	String	m-282dz****	The ID of the custom image.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RegionId	String	cn-qingdao-env17-d01	The region ID of the image.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
ShareGroups	Array		The shared groups.
ShareGroup			
Group	String	all	The name of the shared group.
TotalCount	Integer	1	The total number of entries returned.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeImageSharePermission
&ImageId=m-282dz****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeImageSharePermissionResponse>
      <ImageId>m-282dz****</ImageId>
      <PageNumber>1</PageNumber>
      <PageSize>10</PageSize>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <TotalCount>1</TotalCount>
      <RequestId>441CF898-42FF-47CF-9348-3C3BFF557278</RequestId>
      <ShareGroups>
            <ShareGroup>
                  <Group>all</Group>
            </ShareGroup>
      </ShareGroups>
      <Accounts>
            <Account>
                  <AliyunId>123456****</AliyunId>
            </Account>
      </Accounts>
</DescribeImageSharePermissionResponse>
```

`JSON` format

```
{
    "ShareGroups": {
        "ShareGroup": [
            {
                "Group": "all"
            }
        ]
    },
    "Accounts": {
        "Account": [
            {
                "AliyunId": "123456****"
            }
        ]
    },
    "ImageId": "m-282dz****",
    "PageNumber": 1,
    "PageSize": 10,
    "RegionId": "cn-qingdao-env17-d01",
    "TotalCount": 1,
    "RequestId": "9AD96F49-0BE5-4868-A66A-224352549CEC"
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter "RegionId "that is mandatory for processing this request is not supplied.	The error message returned because the RegionId parameter is not specified.
400	MissingParameter	The input parameter "ImageId "that is mandatory for processing this request is not supplied.	The error message returned because the ImageId parameter is not specified.
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account.

2.1.2.1.9.9. ImportImage

You can call this operation to import a local image to ECS. The imported local image appears as a custom image in the corresponding region. You can use the imported image to create ECS instances (RunInstances) or replace system disks of instances (ReplaceSystemDisk).

Description

When you call this operation, take note of the following items:

- You must upload an image to an Object Storage Service (OSS) bucket before you can import the image.
- You must use Resource Access Management (RAM) to authorize ECS to access your OSS buckets before you upload an image for the first time. If ECS is not authorized to access your OSS buckets, the `NoSetRoletoECSServiceAcount` error code is returned when you call the ImportImage operation. The following example shows some steps in the authorization procedure:

  1. Create a role named `AliyunECSImageImportDefaultRole`. You must use this exact name. Otherwise, the image will fail to be imported. Configure the following trust policy for the role:

```
{
    "Statement": [
    {
        "Action": "sts:AssumeRole",
        "Effect": "Allow",
        "Principal": {
        "Service": [
            "ecs.example.com"
        ]
        }
    }
],
    "Version": "1"
}
```

2. Attach the `AliyunECSImageImportRolePolicy` system policy to the role. Alternatively, you can create a custom policy that contains the following content and attach the policy to the role:

```
{
    "Version": "1",
    "Statement": [
    {
        "Action": [
                "oss:GetObject",
                "oss:GetBucketLocation",
                "oss:GetBucketInfo"
    ],
            "Resource": "*",
            "Effect": "Allow"
            }
    ]
}
```

- You cannot delete an image that is being imported. However, you can call the CancelTask operation to cancel the image import task.
- You can import an image only to the same region as the OSS bucket to which the image is uploaded.
- Valid values of N in the `DiskDeviceMapping.N` parameter: 1 to 17. When N is 1, the disk is a system disk. When N ranges from 2 to 17, the disk is a data disk.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ImportImage	The operation that you want to perform. Set the value to ImportImage.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the image to be imported. You can call the DescribeRegions operation to query the most recent region list.
DiskDeviceMapping.N.Format	String	No	qcow2	The format of the image. Valid values: • RAW • VHD • qcow2 This parameter is empty by default, which indicates that the system automatically checks the format of the image and uses the check result as the value of this parameter.

Parameter	Type	Required	Example	Description
DiskDeviceMapping.N.OSSBucket	String	No	ecsimageos	The OSS bucket where the image is stored. **Note** Before you upload an image to an OSS bucket for the first time, see the "Description" section in this topic to authorize ECS to access your OSS buckets. If ECS is not authorized to access your OSS buckets, the `NoSetRoletoECSServiceAcount` error code is returned when you call the ImportImage operation.
DiskDeviceMapping.N.OSSObject	String	No	CentOS_5.4_32.raw	The OSS object that corresponds to the image.
DiskDeviceMapping.N.DiskImSize	Integer	No	80	The size of the image. **Note** This parameter will be removed in the future. We recommend that you use the DiskDeviceMapping.N.DiskImageSize parameter to ensure future compatibility.

Parameter	Type	Required	Example	Description
DiskDeviceMapping.N.DiskImageSize	Integer	No	80	The size of disk N in the image. The capacity of the system disk must be greater than or equal to the actual space used by file systems. Valid values: • When N is set to 1, the disk is a system disk and its size ranges from 5 GiB to 500 GiB. • When N is set to a value from 2 to 17, the disk is a data disk and its size ranges from 5 GiB to 1,000 GiB. When you import an image, the system automatically checks the sizes of disks contained in the image and uses the check results as the values of this parameter.
DiskDeviceMapping.N.Device	String	No	null	The device name of disk N in the custom image. Note This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
ImageName	String	No	ImageTestName	The name of the image. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
Description	String	No	TestDescription	The description of the image. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
Architecture	String	No	x86_64	The system architecture. Default value: x86_64. Valid values: • i386 • x86_64
OSType	String	No	linux	The type of the operating system. Default value: linux. Valid values: • windows • linux
Platform	String	No	Aliyun	The distribution of the operating system. Default value: Others Linux. Valid values: • CentOS • Ubuntu • SUSE • OpenSUSE • Debian • CoreOS • Aliyun • Windows Server 2003 • Windows Server 2008 • Windows Server 2012 • Others Linux • Customized Linux
RoleName	String	No	AliyunECSImageImportDefaultRole	The name of the RAM role used to import the image.

Parameter	Type	Required	Example	Description
LicenseType	String	No	Auto	The type of the license used to activate the operating system after the image is imported. Default value: Auto. Valid values: • Auto: ECS checks the operating system of the imported image and allocates a license to the operating system. Specifically, ECS first checks whether the operating system distribution specified by `Platform` has a license allocated through an official Alibaba Cloud channel. If yes, ECS allocates that license to the imported image. If no, the license that comes with the source operating system is used. • Aliyun: The license allocated through an official Alibaba Cloud channel is used for the operating system distribution specified by `Platform`. • BYOL: The license that comes with the source operating system is used. In this case, ensure that your license key can be used in Apsara Stack.

Response parameters

Parameter	Type	Example	Description
ImageId	String	m-bp67acfmxazb4p****	The ID of the image.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TaskId	String	t-bp67acfmxazb4p****	The ID of the image import task.

Examples

Sample requests

```
https://ecs.example.com/?Action=ImportImage
&RegionId=cn-qingdao-env17-d01
&DiskDeviceMapping.1.Format=qcow2
&DiskDeviceMapping.1.OSSBucket=ecsimageos
&DiskDeviceMapping.1.OSSObject=CentOS_5.4_32.raw
&DiskDeviceMapping.1.DiskImageSize=80
&ImageName=Test
&Description=Test
&Architecture=x86_64
&OSType=linux
&Platform=Aliyun
&LicenseType=Aliyun
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ImportImageResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
      <ImageId>m-bp67acfmxazb4p****</ImageId>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <TaskId>t-bp67acfmxazb4p****</TaskId>
</ImportImageResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "ImageId": "m-bp67acfmxazb4p****",
    "RegionId": "cn-qingdao-env17-d01",
    "TaskId": "t-bp67acfmxazb4p****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "RegionId" that is mandatory for processing the request is not supplied.	The error message returned because the required RegionId parameter is not specified.
400	MissingParameter	An input parameter "DiskDeviceMapping.1.OSSBucket" that is mandatory for processing the request is not supplied.	The error message returned because the DiskDeviceMapping.N.OSSBucket parameter is not specified.

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "DiskDeviceMapping.1.OSSObject " that is mandatory for processing the request is not supplied.	The error message returned because the DiskDeviceMapping.N.OSSObject parameter is not specified.
400	InvalidImageName.Malformed	The specified Image name is wrongly formed.	The error message returned because the specified ImageName parameter is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidOSSObject.Malformed	The specified OSS object is wrongly formed.	The error message returned because the specified DiskDeviceMapping.N.OSSObject parameter is invalid.
400	InvalidDescription.Malformed	The specified Image description is wrongly formed.	The error message returned because the specified Description parameter is invalid.
400	InvalidArchitecture.Malformed	The specified Architecture is wrongly formed.	The error message returned because the specified Architecture parameter is invalid.
400	InvalidPlatform.Malformed	The specified Platform is wrongly formed.	The error message returned because the specified Platform parameter is invalid.
400	InvalidOSType.Malformed	The specified OSType is wrongly formed.	The error message returned because the specified OSType parameter is invalid.
400	InvalidImageName.Duplicated	The destination image is exist.	The error message returned because the specified image name already exists.
400	InvalidImageSize	%s	The error message returned because the specified image size is invalid.
400	InvalidDataDiskSize	The specified DiskDeviceMapping.N.DiskImSize should be in the specified range.	The error message returned because the specified DiskDeviceMapping.N.DiskImSize parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidImageFormat.Malformed	The specified Image Format is wrongly formed.	The error message returned because the specified image format is invalid.
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	InvalidRegion.NotSupport	The specified region does not support image import or export.	The error message returned because the specified region does not support this operation.
403	ImageIsImporting	The specified Image is importing.	The error message returned because the specified image is being imported and cannot be operated.
403	QuotaExceed.Image	The Image Quota exceeds.	The error message returned because the maximum number of custom images has been reached.
403	ImportImageFailed	Importing image is failed, Please contact the administrator.	The error message returned because the image failed to be imported. Contact a system administrator.
403	UserNotInTheWhiteList	The user is not in the white list of importing image.	The error message returned because you are not authorized to import images.
403	NoSetRoletoECSServiceAcount	ECS service account Have no right to access your OSS.please attach a role of access your oss to ECS service account.	The error message returned because ECS is not authorized to access the specified OSS bucket and object.
400	InvalidOSSBucket.NotFound	The specified OSS bucket does not exist in this region.	The error message returned because the specified OSS bucket does not exist.
403	InvalidParameter.Malformed	The specified parameter "DiskDeviceMapping.n.Device " is not valid.	The error message returned because the specified DiskDeviceMapping.N.Device parameter is invalid.
403	MissingParameter.DiskDeviceMapping	The specified parameter DiskDeviceMapping is not supplied.	The error message returned because a parameter that starts with DiskDeviceMapping is not specified.

HTTP status code	Error code	Error message	Description
400	InvalidOSSObject.NotFound	The specified OSS object does not exist in this region.	The error message returned because the specified OSS object does not exist.
400	InvalidOSSObject.NotFound	The specified OSS object cannot be retrieved.	The error message returned because the specified OSS object does not exist.
400	InvalidLicenseType.NotSupported	The specified LicenseType is not supported	The error message returned because the specified LicenseType parameter is invalid.
400	InvalidLicenseType.BYOLOnly	Only BYOL LicenseType is supported for the current platform provided	The error message returned because the current platform supports only BYOL licenses.

2.1.2.1.9.10. ExportImage

You can call this operation to export a custom image to an OSS bucket in the same region.

Description

- A custom image cannot be exported if it contains more than four data disk snapshots or if one of the data disk snapshots exceeds 500 GiB in size.
- Before you export a custom image, you must use Resource Access Management (RAM) to create a RAM role for ECS and authorize ECS to write data to OSS.

  1. Create a role named `AliyunECSImageExportDefaultRole`. Any other role names are invalid. Configure the following trust policy for the role:

```
{
  "Statement": [
    {
      "Action": "sts:AssumeRole",
      "Effect": "Allow",
      "Principal": {
        "Service": [
          "ecs.aliyuncs.com"
        ]
      }
    }
  ],
  "Version": "1"
}
```

  2. Attach the `AliyunECSImageExportRolePolicy` system policy to the `AliyunECSImageExportDefaultRole` role. This policy is the default policy used for ECS to export images. Alternatively, you can create a custom policy that contains the following content and attach the policy to the role:

```
{
  "Version": "1",
  "Statement": [
    {
      "Action": [
        "oss:GetObject",
        "oss:PutObject",
        "oss:DeleteObject",
        "oss:GetBucketLocation",
        "oss:GetBucketInfo",
        "oss:AbortMultipartUpload",
        "oss:ListMultipartUploads",
        "oss:ListParts"
      ],
      "Resource": "*",
      "Effect": "Allow"
    }
  ]
}
```

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ExportImage	The operation that you want to perform. Set the value to ExportImage.
ImageId	String	Yes	m-bp67acfmxazb4p****	The ID of the custom image.
OSSBucket	String	Yes	testexportImage	The OSS bucket to which to export the custom image.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the custom image. You can call the DescribeRegions operation to query the most recent region list.
OSSPrefix	String	No	EcsExport	The prefix of the object as which to store the custom image in the OSS bucket. It must be 1 to 30 characters in length and can contain digits and letters.

Parameter	Type	Required	Example	Description
ImageFormat	String	No	raw	The format in which to export the custom image. Valid values: • raw • vhd • qcow2 • vmdk • vdi Default value: raw.
RoleName	String	No	EcsServiceRole-EcsDocGuideTest	The name of the RAM role used to export the custom image.

Response parameters

Parameter	Type	Example	Description
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RequestId	String	C8B26B44-0189-443E-9816-D951F59623A9	The ID of the request.
TaskId	String	tsk-bp67acfmxazb4p****	The ID of the image export task.

Examples

Sample requests

```
https://ecs.example.com/?Action=ExportImage
&ImageId=m-bp67acfmxazb4p****
&OSSBucket=testexportImage
&RegionId=cn-qingdao-env17-d01
&OSSPrefix=EcsExport
&ImageFormat=raw
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ExportImageResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
      <TaskId>tsk-bp67acfmxazb4p****</TaskId>
      <RegionId>cn-qingdao-env17-d01</RegionId>
</ExportImageResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "TaskId": "tsk-bp67acfmxazb4p****",
    "RegionId": "cn-qingdao-env17-d01"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "RegionId" that is mandatory for processing the request is not supplied.	The error message returned because the RegionId parameter is not specified.
400	MissingParameter	An input parameter "ImageId" that is mandatory for processing the request is not supplied.	The error message returned because the ImageId parameter is not specified.
400	MissingParameter	An input parameter "OSSBucket" that is mandatory for processing the request is not supplied.	The error message returned because the OSSBucket parameter is not specified.
400	InvalidImageName.Malformed	The specified Image name is wrongly formed.	The error message returned because the specified image name is invalid. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
400	InvalidOSSPrefix.Malformed	The specified OSSPrefix format is wrongly formed.	The error message returned because the specified OSSPrefix parameter is invalid.
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	InvalidRegion.NotSupport	The specified region does not support image import or export.	The error message returned because the specified region does not support the operation.

HTTP status code	Error code	Error message	Description
404	InvalidImageId.NotFound	The specified ImageId does not exist.	The error message returned because the specified image does not exist in this account. Check whether the image ID is correct.
400	IncorrectImageStatus	The specified Image is not available.	The error message returned because the status of the specified image is invalid.
403	ImageNotSupported	The specified image from the image market, do not support export image.	The error message returned because the specified image is an Alibaba Cloud Marketplace image and cannot be exported.
400	InvalidImageFormat.Malformed	The specified Image Format is wrongly formed.	The error message returned because the specified ImageFormat parameter is invalid.
403	ImageIsExporting	The specified Image is exporting.	The error message returned because the specified image is being exported.
403	ExportImageFailed	Exporting image is failed, Please contact the administrator.	The error message returned because the image failed to be exported. Contact a system administrator.
403	UserNotInTheWhiteList	The user is not in the white list of exporting image.	The error message returned because you are not authorized to export images.
403	NoSetRoletoECSServiceAcount	ECS service account Have no right to access your OSS.please attach a role of access your oss to ECS service account.	The error message returned because ECS is not authorized to access the specified OSS bucket and object.
400	InvalidOSSBucket.NotFound	The specified OSS bucket does not exist in this region.	The error message returned because the specified OSSBucket parameter does not exist.
400	OperationDenied	The specified image contains the snapshot of the data disk,does not support this operation.	The error message returned because the operation is not supported while the image contains data disk snapshots.

HTTP status code	Error code	Error message	Description
400	InvalidImage.DiskAmountOrSize	%s	The error message returned because the image contains more than four data disk snapshots or one of the data disk snapshot exceeds 500 GiB in size.
400	ImageNotSupported	The specified Image contains encrypted snapshots, do not support export.	The error message returned because the specified image contains encrypted snapshots and cannot be exported.
400	ImageNotSupported	Image from image market does not support exporting.	The error message returned because the specified image is an Alibaba Cloud Marketplace image and cannot be exported.
403	ConcurrentQuotaExceed.ExportImage	%s	The error message returned because the maximum number of concurrent ongoing tasks has been reached. Try again later.
403	WeeklyQuotaExceed.ExportImage	%s	The error message returned because the weekly quota for exported images of this week has been used up. Retry when the quota becomes available again.

2.1.2.1.9.11. DescribeImageSupportInstanceTypes

You can call this operation to query the instance types supported by an image.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeImageSupportInstanceTypes	The operation that you want to perform. Set the value to DescribeImageSupportInstanceTypes.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the image. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ImageId	String	No	m-o6w3gy99qf89rkga****	The ID of the image.
ActionType	String	No	CreateEcs	The scenario in which the instance type is used. Default value: CreateEcs. Valid values: • CreateEcs: instance creation • Upgrade: instance type upgrade • Downgrade: instance type downgrade
Filter.N.Key	String	No	imageId	The key of filter N. Valid values: • imageId: image ID • filter: image ID
Filter.N.Value	String	No	m-o6w3gy99qf89rkga****	The value of filter N.

Response parameters

Parameter	Type	Example	Description
ImageId	String	m-o6w3gy99qf89rkga****	The ID of the image.
InstanceTypes	Array		The collection of details about instance types that are supported by the image.
InstanceType			
CpuCoreCount	Integer	1	The number of vCPUs of the instance type.
InstanceTypeFamily	String	ecs.t1	The instance family.
InstanceTypeId	String	ecs.t1.xsmall	The ID of the instance type.
MemorySize	Float	1024	The memory size of the instance type. Unit: GiB.
RegionId	String	cn-qingdao-env17-d01	The region ID of the image.

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeImageSupportInstanceTypes
&RegionId=cn-qingdao-env17-d01
&ImageId=m-o6w3gy99qf89rkga****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeImageSupportInstanceTypesResponse>
      <RequestId>CF661E2D-4AFE-4BCD-959A-A65E14416B44</RequestId>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <ImageId>ubuntu_16_0402_64_20G_alibase_20180409.vhd</ImageId>
      <InstanceTypes>
            <InstanceType>
                  <InstanceTypeId>ecs.t1.xsmall</InstanceTypeId>
                  <CpuCoreCount>1</CpuCoreCount>
                  <MemorySize>0.5</MemorySize>
                  <InstanceTypeFamily>ecs.t1</InstanceTypeFamily>
            </InstanceType>
            <InstanceType>
                  <InstanceTypeId>ecs.t1.small</InstanceTypeId>
                  <CpuCoreCount>1</CpuCoreCount>
                  <MemorySize>1</MemorySize>
                  <InstanceTypeFamily>ecs.t1</InstanceTypeFamily>
            </InstanceType>
      </InstanceTypes>
</DescribeImageSupportInstanceTypesResponse>
```

`JSON` format

```
{
    "RequestId": "CF661E2D-4AFE-4BCD-959A-A65E14416B44",
    "RegionId": "cn-qingdao-env17-d01",
    "ImageId": "ubuntu_16_0402_64_20G_alibase_20180409.vhd",
    "InstanceTypes": {
        "InstanceType": [{
            "InstanceTypeId": "ecs.t1.xsmall",
            "CpuCoreCount": 1,
            "MemorySize": 0.5,
            "InstanceTypeFamily": "ecs.t1"
        },
        {
            "InstanceTypeId": "ecs.t1.small",
            "CpuCoreCount": 1,
            "MemorySize": 1,
            "InstanceTypeFamily": "ecs.t1"
        }]
    }
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidParamter	Invalid Parameter	The error message returned because a specified parameter is invalid.
404	InvalidUsage	The specifed Usage is not valid	The error message returned because the specified referenced resource type (image, disk, image_disk, or none) is invalid.
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified instance type does not exist or you are not authorized to manage instances of this instance type.

2.1.2.1.10. Networks

2.1.2.1.10.1. ModifyInstanceNetworkSpec

You can call this operation to modify the bandwidth configurations of an instance. You can modify the bandwidth configurations of an instance to improve network performance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceNetworkSpec	The operation that you want to perform. Set the value to ModifyInstanceNetworkSpec.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance for which you want to modify bandwidth configurations.
InternetMaxBandwidthOut	Integer	No	10	The maximum outbound network bandwidth. Unit: Mbit/s. Valid values: 0 to 100.
InternetMaxBandwidthIn	Integer	No	10	The maximum inbound bandwidth. Unit: Mbit/s. Valid values: • When the maximum outbound bandwidth is less than or equal to 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to 10 and the default value is 10. • When the maximum outbound bandwidth is greater than 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to the `InternetMaxBandwidthOut` value and the default value is the `InternetMaxBandwidthOut` value.
AllocatePublicIp	Boolean	No	false	**Note** This parameter is not supported.
StartTime	String	No	2017-12-05T22:40Z	The start time of the temporary bandwidth upgrade. Specify the time in the ISO 8601 standard in the yyyy-MM-ddThh:mmZ format. The time must be in UTC and accurate to **minutes** (mm).
EndTime	String	No	2017-12-06T22Z	The end time of the temporary bandwidth upgrade. Specify the time in the ISO 8601 standard in the yyyy-MM-ddThhZ format. The time must be in UTC and accurate to **hours** (hh).

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
OrderId	String	0	**Note** This parameter is not supported.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyInstanceNetworkSpec
&InstanceId=i-bp67acfmxazb4ph****
&InternetMaxBandwidthOut=10
&ClientToken=123e4567-e89b-12d3-a456-426655440000
```

Sample success responses

`XML` format

```
<ModifyInstanceNetworkSpecResponse>
        <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</ModifyInstanceNetworkSpecResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidInternetMaxBandwidthIn.ValueNotSupported	The specified InternetMaxBandwidthIn is beyond the permitted range.	The error message returned because the specified InternetMaxBandwidthIn parameter is not within the permitted range.
400	InvalidInternetMaxBandwidthOut.ValueNotSupported	The specified InternetMaxBandwidthOut is beyond the permitted range.	The error message returned because the specified InternetMaxBandwidthOut parameter is not within the permitted range.
403	IncorrectInstanceStatus	The current status of the instance does not support this operation.	The error message returned because the operation is not supported while the instance is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	InstanceExpiredOrInArrears	The specified operation is denied as your prepay instance is expired (prepay mode) or in arrears (afterpay mode).	The error message returned because the subscription instance has expired. Renew the instance and try again.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	ChargeTypeViolation	The operation is not permitted due to billing method of the instance.	The error message returned because the billing method of the instance does not support the operation.
403	OperationDenied	The operation is denied due to the instance is PrePaid.	The error message returned because the instance is a subscription instance and does not support the operation.
400	OperationDenied	Specified instance is in VPC.	The error message returned because the instance resides in a VPC.

HTTP status code	Error code	Error message	Description
400	InvalidParameter.Bandwidth	%s	The error message returned because the specified bandwidth is invalid.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
400	InvalidStartTime.ValueNotSupported	%s	The error message returned because the end time is earlier than the start time.
400	Account.Arrearage	Your account has an outstanding payment.	The error message returned because you have overdue payments in your account.
400	InvalidInternetChargeType.ValueNotSupported	The specified InternetChargeType is invalid.	The error message returned because the specified InternetChargeType parameter is invalid.
400	DecreasedBandwidthNotAllowed	%s	The error message returned because the bandwidth cannot be downgraded.
400	BandwidthUpgradeDenied.EipBoundInstance	The specified VPC instance has bound EIP, temporary bandwidth upgrade is denied.	The error message returned because the instance is associated with an elastic IP address and cannot have its bandwidth temporarily upgraded.
400	InvalidClientToken.ValueNotSupported	The ClientToken provided is invalid.	The error message returned because the specified client token is invalid.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	InvalidInstance.UnPaidOrder	The specified Instance has unpaid order.	The error message returned because you have unpaid orders for the specified instance. Pay for the orders and try again.
400	Throttling	Request was denied due to request throttling, please try again after 5 minutes.	The error message returned because your request is denied due to throttling. Try again 5 minutes later.

HTTP status code	Error code	Error message	Description
400	InvalidAction	Specified action is not valid.	The error message returned because this operation is invalid.
400	IpAllocationError	Allocate public ip failed.	The error message returned because a public IP address failed to be assigned.
400	InvalidParam.AllocatePublicIp	The specified param AllocatePublicIp is invalid.	The error message returned because the specified AllocatePublicIp parameter is invalid.
400	InstanceDowngrade.QuotaExceed	Quota of instance downgrade is exceed.	The error message returned because the maximum number of configuration downgrades allowed for the instance has been reached.
400	InvalidBandwidth.ValueNotSupported	Instance upgrade bandwidth of temporary not allow less then existed.	The error message returned because the new bandwidth specified for the temporary bandwidth upgrade is lower than the current bandwidth.
403	InvalidInstance.InstanceNotSupported	The special vpc instance with eip not need bandwidth.	The error message returned because the instance is located in a VPC and associated with an elastic IP address and you cannot specify a public bandwidth for the instance.
400	InvalidInstanceStatus	The specified instance status does not support this action.	The error message returned because the operation is not supported while the instance is in the current state.
403	InvalidInstanceStatus	The current status of the instance does not support this operation.	The error message returned because this operation is not supported while the instance is in the current state.
400	InvalidInstance.UnPaidOrder	Unpaid order exists in your account, please complete or cancel the payment in the expense center.	The error message returned because you have unpaid orders in your account. Pay for the orders and try again.

HTTP status code	Error code	Error message	Description
400	OperationDenied	After downgrade, you cannot upgrade or downgrade your instances again in the remaining time of the current billing cycle.	The error message returned because you have downgraded the configurations of the instance and cannot upgrade or downgrade the configurations again until a new billing cycle starts.
400	InvalidInternetChargeType.ValueNotSupported	%s	The error message returned because the specified InternetChargeType parameter is invalid.
400	LastOrderProcessing	The previous order is still processing, please try again later.	The error message returned because the order is being processed. Try again later.
400	OperationDenied	The current user does not support this operation.	The error message returned because your account does not support the operation.
403	NAT_PUBLIC_IP_BINDING_FAILED	Binding nat public ip failed	The error message returned because the public IP address failed to be associated with the gateway.
403	InvalidInstance.EipNotSupport	The specified instance with eip is not supported, please unassociate eip first.	The error message returned because the operation is not supported while an elastic IP address is associated with the instance. Disassociate the elastic IP address first.
403	InvalidNetworkType.ValueNotSupported	The specified parameter NetworkType is not valid.	The error message returned because the specified network type is invalid.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.

2.1.2.1.10.2. AttachClassicLinkVpc

You can call this operation to link a classic network-type instance to a VPC by establishing a ClassicLink connection. This way, the instance can communicate with cloud resources in the VPC through the internal network.

Description

When you call this operation, make sure that the following requirements are met:

- The classic network-type instance to be linked is in the **Running** (Running) or **Stopped** (Stopped) state.
- ClassicLink is enabled for the target VPC. For more information, see Enable ClassicLink.
- The instance and the VPC are in the same region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AttachClassicLinkVpc	The operation that you want to perform. Set the value to AttachClassicLinkVpc.
InstanceId	String	Yes	i-test	The ID of the classic network-type instance. You can call the DescribeInstances operation to query the most recent instance list.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	Yes	vpc-test	The ID of the VPC where ClassicLink is enabled. You can call the DescribeVpcs operation to query available VPCs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AttachClassicLinkVpc
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-test
&VpcId=vpc-test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AttachClassicLinkVpcResponse>
      <RequestId>C0003E8B-B930-4F59-ADC0-0E209A9012A8</RequestId>
</AttachClassicLinkVpcResponse>
```

`JSON` format

```
{
    "RequestId": "C0003E8B-B930-4F59-ADC0-0E209A9012A8"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidInstanceId.MalFormed	The specified instance is not a classic network instance.	The error returned because the specified instance is not in the classic network.
403	OperationDenied	The instance does not allow link to vpc.	The error returned because the instance is linked to another VPC.
403	InvalidParameter.InvalidInstanceIdAndVpcId	The parameter InstanceId and VpcId are not allowed to be empty at the same time.	The error message returned because neither InstanceId nor VpcId is specified.
403	OperationDenied	The specified vpc is disabled attach classic link.	The error message returned because ClassicLink cannot be enabled for the specified VPC.
403	InvalidInstanceId.NotFound	The specified instance does not exist.	The error message returned because the specified InstanceId parameter does not exist.

HTTP status code	Error code	Error message	Description
403	InvalidStatus.InstanceStatus	The specified instance status is not support this operation ,expect status is running or shutted.	The error message returned because the operation is not supported while the instance is in the current state. The instance must be in the Running or Stopped state.
403	InvalidStatus.InstanceStatus	The specified instance status is not support this operation, expect status is running or shutted.	The error message returned because the operation is not supported while the instance is in the current state. The instance must be in the Running or Stopped state.
403	InvalidInstanceId.NotBelong	The specified instance is not belong to you.	The error message returned because the specified instance does not exist in your account.
403	QuotaExceeded	The link quota exceeded in this vpc.	The error message returned because the maximum number of ClassicLink connections that can be established to the specified VPC has been reached.
403	InvalidStatus.InstanceLocked	The specified instance is locked,please wait more.	The error message returned because the specified instance is locked. Try again when the instance is unlocked.
403	InvalidInstanceId.LimitedRegion	The specified instance does not support this operation due to the limitation of its region.	The error message returned because a ClassicLink connection cannot be established for the instance due to the region limit.
403	Forbidden.SubUser	User not authorized to operate on the specified resource.	The error message returned because the RAM user is not authorized to manage this resource.

2.1.2.1.10.3. ModifyInstanceSpec

You can call this operation to change the instance type and network bandwidth of an ECS instance.

Description

When you call this operation, take note of the following items:

- You can adjust the network bandwidth of an instance only when the instance is in the **Running** (`Running`) or **Stopped** (`Stopped`) state.
- Before you change the instance type of an instance, you can call the DescribeResourcesModification

operation to query the instance types to which you can change.

- You can change the instance type of an instance only when the instance is in the **Stopped** (`Stopped`) state.
- You can only change either the instance type or the network bandwidth each time.
- After a change is complete for an instance, you cannot initiate another change for this instance within five minutes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceSpec	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to ModifyInstanceSpec.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
InstanceType	String	No	ecs.g5.large	The target instance type. You can call the DescribeInstanceTypes operation to query the most recent instance type list.
InternetMaxBandwidthOut	Integer	No	10	The maximum outbound network bandwidth. Unit: Mbit/s. Valid values: 0 to 100.
InternetMaxBandwidthIn	Integer	No	10	The maximum inbound network bandwidth. Unit: Mbit/s. Valid values: • When the maximum outbound network bandwidth is less than or equal to 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to 10 and the default value is 10. • When the maximum outbound network bandwidth is greater than 10 Mbit/s, the valid values of InternetMaxBandwidthIn are 1 to the `InternetMaxBandwidthOut` value and the default value is the `InternetMaxBandwidthOut` value.

Parameter	Type	Required	Example	Description
Temporary.StartTime	String	No	2017-12-05T22:40:00Z	The start time of the temporary bandwidth upgrade. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
Temporary.EndTime	String	No	2017-12-05T22:40:00Z	The end time of the temporary bandwidth upgrade. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
Temporary.InternetMaxBandwidthOut	Integer	No	50	The maximum outbound network bandwidth after the temporary bandwidth upgrade. Valid values: 1 to 100. **Note** This parameter will be removed in the future. We recommend that you use other parameters to ensure future compatibility.
Async	Boolean	No	false	Specifies whether to submit an asynchronous request. Default value: false.

Parameter	Type	Required	Example	Description
AllowMigrateAcrossZone	Boolean	No	false	Specifies whether to allow cross-cluster instance type upgrade. Default value: false. When `AllowMigrateAcrossZone` is set to true and you upgrade the instance configurations based on the returned information, take note of the following items: Instances in the classic network: • For phased-out instance types, when a non-I/O optimized instance is upgraded to an I/O optimized instance, the private IP address, disk device names, and software license codes of the instance are changed. For Linux instances, basic disks (`cloud`) are identified as **xvda** through **xvdz**, and ultra disks (`cloud_efficiency`) and standard SSDs (`cloud_ssd`) are identified as **vda** through **vdz**. • For instance families available for purchase, when the instance type of an instance is changed, the private IP address of the instance is also changed. Instances in a VPC: For phased-out instance types, when a non-I/O optimized instance is upgraded to an I/O optimized instance, the disk device names and software license codes of the instance are changed. For Linux instances, basic disks (`cloud`) are identified as **xvda** through **xvdz** and ultra disks (`cloud_efficiency`) and standard SSDs (`cloud_ssd`) are identified as **vda** through **vdz**.

Parameter	Type	Required	Example	Description
SystemDisk.Category	String	No	cloud_ssd	The category of the system disk. This parameter takes effect only when you upgrade a non-I/O optimized instance of a phased-out instance type to an I/O optimized instance of an instance type available for purchase. Valid values: • cloud_efficiency: ultra disk • cloud_ssd: standard SSD
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyInstanceSpec
&InstanceId=i-bp67acfmxazb4ph****
&InstanceType=ecs.s1.large
&InternetMaxBandwidthOut=10
&ClientToken=0c593ea1-3bea-11e9-b96b-88e9fe637760
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyInstanceSpecResponse>
     <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
</ModifyInstanceSpecResponse>
```

`JSON` format

```
{
   "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidInternetChargeType.ValueNotSupported	The specified InternetChargeType is not valid.	The error message returned because the specified billing method of network usage is not supported.
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or you are not authorized to manage instances of this instance type.
400	InvalidInstanceType.ValueUnauthorized	The specified InstanceType is not authorized.	The error message returned because you are not authorized to use the specified instance type.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidInstanceType.ValueNotSupported	The specified InstanceType does not exist or beyond the permitted range.	The error message returned because the specified InstanceType parameter does not exist or you are not authorized to manage instances of this instance type.
400	InvalidParameter	The specified parameter "InternetMaxBandwidthOut" is not valid.	The error message returned because the specified InternetMaxBandwidthOut parameter is invalid.
400	InvalidParameter.Mismatch	Too many parameters in one request.	The error message returned because the request contains invalid parameters.

HTTP status code	Error code	Error message	Description
403	CategoryViolation	The specified instance does not support this operation because of its disk category.	The error message returned because the instance types of instances that are attached with local disks cannot be changed.
403	InvalidStatus.ValueNotSupported	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidAccountStatus.NotEnoughBalance	Your account does not have enough balance.	The error message returned because your account balance is insufficient. Add funds to your account and try again.
403	ChargeTypeViolation	The operation is not permitted due to charge type of the instance.	The error message returned because the billing method of the instance does not support this operation.
403	OperationDenied	The specified instance is out of usage.	The error message returned because the resource inventory of the specified instance type is insufficient.
400	BandwidthUpgradeDenied.EipBoundInstance	The specified VPC instance has bound EIP, temporary bandwidth upgrade is denied.	The error message returned because the instance is associated with an elastic IP address and the instance network bandwidth cannot be temporarily upgraded.
404	MissingTemporary.StartTime	Temporary.StartTime is not specified.	The error message returned because the Temporary.StartTime parameter is not specified.
404	MissingTemporary.EndTime	Temporary.EndTime is not specified.	The error message returned because the Temporary.EndTime parameter is not specified.

HTTP status code	Error code	Error message	Description
400	InvalidTemporary.StartTime	The specifed Temporary.StartTime is not valid.	The error message because the specified Temporary.StartTime parameter is invalid.
400	InvalidTemporary.EndTime	The specifed Temporary.EndTime is not valid.	The error message returned because the specified Temporary.EndTime parameter is invalid.
403	LastTokenProcessing	The last token request is processing.	The error message returned because the previous token request is being processed. Try again later.
400	Downgrade.NotSupported	Downgrade operation is not supported.	The error message returned because the downgrade operation is not supported.
403	InstanceSpecModification.NotEffective	The specified instance has been reserved for making a spec modification and not taken effective in the current contract period.	The error message returned because the instance is reserved due to specification changes. Changes made to it cannot take effect during the current contract period.
400	DependencyViolation.InstanceType	The current InstanceType cannot be changed to the specified InstanceType.	The error message returned because the current instance type cannot be changed to the specified instance type.
403	InvalidInstanceType.ValueNotSupported	The specified zone does not offer the specified instancetype.	The error message returned because the specified instance type is unavailable in the specified region.
403	ImageNotSupportInstanceType	The specified image do not support the InstanceType instance.	The error message returned because the specified image does not support the specified instance type.
400	Account.Arrearage	Your account has an outstanding payment.	The error message returned because you have overdue payments in your account.
400	InvalidParameter.Bandwidth	The specified parameter Bandwidth is not valid.	The error message returned because the specified bandwidth is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidParameter.Conflict	The specified image does not support the specified instance type.	The error message returned because the specified image does not support the specified instance type.
400	InvalidParameter.AllowMigrateAcrossZone	The specified parameter CanMigrateAcrossZone is not valid.	The error message returned because the specified AllowMigrateAcrossZone parameter is invalid.
400	InvalidParam.SystemDiskCategory	The specified param SystemDisk.Category is not valid.	The error message returned because the specified SystemDisk.Category parameter is invalid.
400	Throttling	Request was denied due to request throttling, please try again after 5 minutes.	The error message returned because your current request is denied due to throttling. Try again five minutes later.
400	InvalidInstanceStatus.NotStopped	The specified Instance status is not stopped.	The error message returned because the specified instance is not in the Stopped state.
403	InstanceType.Offline	The specified InstanceType has been offline	The error message returned because the specified instance type is phased out. Select another instance type and try again.
400	InvalidAction	Specified action is not valid.	The error message returned because the operation is invalid.
400	IdempotenceParamNotMatch	There is a idempotence signature mismatch between this and last request.	The error message returned because the idempotence signature of this request does not correspond to that of the last request.
400	InvalidClientToken.ValueNotSupported	The ClientToken provided is invalid.	The error message returned because the specified ClientToken parameter is invalid.
400	Price.PricePlanResultNotFound	The internetMaxBandwidthIn or internetMaxBandwidthOut provided is invalid.	The error message returned because the specified InternetMaxBandwidthOut or InternetMaxBandwidthIn parameter is invalid.

HTTP status code	Error code	Error message	Description
403	InvalidParameter.NotMatch	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.
403	InvalidInstance.EipNotSupport	The specified instance with eip is not supported, please unassociate eip first.	The error message returned because the operation is not supported while an elastic IP address is associated with this instance. Disassociate the elastic IP address first.
400	InvalidAction.NotSupport	The ecs on dedicatedHost not support modify instanceType.	The error message returned because you cannot change the instance types of instances hosted on dedicated hosts.
400	InvalidMarketImageStatus.NotSupported	The status of specified market image does not support this operation.	The error message returned because the operation is not supported while the specified Alibaba Cloud Marketplace image is in the current state.
403	OperationDenied.NoStock	The resource is out of usage.	The error message returned because the instance is not in the Running state. Start the instance or check whether the operation is valid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	OperationDenied	%s	The error message is returned because the operation is denied.
403	InvalidOperation.Ipv4CountExceeded	%s	The error message returned because the maximum number of IPv4 addresses has been reached.
403	InvalidOperation.Ipv6CountExceeded	%s	The error message returned because the maximum number of IPv6 addresses has been reached.
403	InvalidOperation.Ipv6NotSupport	%s	The error message returned because IPv6 does not support this operation.

HTTP status code	Error code	Error message	Description
403	InvalidOperation.InstanceWithEipNotSupport	The special instance with eip not support operate, please unassociate eip first.	The error message returned because the operation is not supported while an elastic IP address is associated with this instance. Disassociate the elastic IP address first.
403	SecurityRisk.3DVerification	We have detected a security risk with your default credit or debit card. Please proceed with verification via the link in your email.	The error message returned because risks are detected in your default credit card or debit card. Click the link in the email for verification.
404	InvalidInstanceChargeType.NotFound	The InstanceChargeType does not exist in our records	The error message returned because the specified InstanceChargeType parameter does not exist.

2.1.2.1.10.4. DescribeClassicLinkInstances

You can call this operation to query one or more classic network-type instances that are linked to VPCs.

Description

When you call this operation, take note of the following items:

- This operation applies only to instances in the classic network.
- You can query a maximum of 100 classic network-type instances each time.
- At least one of VpcId and InstanceId must be specified.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeClassicLinkInstances	The operation that you want to perform. Set the value to DescribeClassicLinkInstances.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	No	vpc-tes****	The ID of the VPC. ClassicLink must be enabled for the VPC.

Parameter	Type	Required	Example	Description
InstanceId	String	No	i-tes****	The ID of the instance. You can specify a maximum of 100 instance IDs in a single request. Separate multiple IDs with commas (,).
PageNumber	String	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	String	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10

Response parameters

Parameter	Type	Example	Description
Links	Array		The details about the ClassicLink connections between the classic network-type instances and the VPC.
Link			
InstanceId	String	i-tes****	The ID of the instance.
VpcId	String	vpc-tes****	The ID of the VPC.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	2	The total number of connections.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeClassicLinkInstances
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-tes****
&InstanceId=i-tes****, i-tes****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeClassicLinkInstancesResponse>
      <RequestId>B154D309-F3E1-4AB7-BA94-FEFCA8B89001</RequestId>
      <TotalCount>2</TotalCount>
      <PageNumber>1</PageNumber>
      <PageSize>10</PageSize>
      <Links>
            <Link>
                  <InstanceId>i-tes****</InstanceId>
                  <VpcId>vpc-test</VpcId>
            </Link>
            <Link>
                  <InstanceId>i-tes****</InstanceId>
                  <VpcId>vpc-tes****</VpcId>
            </Link>
      </Links>
</DescribeClassicLinkInstancesResponse>
```

`JSON` format

```
{
    "PageNumber":1,
    "Links":{
        "Link":[{
            "InstanceId":"i-tes****",
            "VpcId":"vpc-tes****"
            },
           {
           "InstanceId": "i-tes****",
           "VpcId": "vpc-tes****"
           }]
    },
    "TotalCount":2,
    "PageSize":10,
    "RequestId":"B154D309-F3E1-4AB7-BA94-FEFCA8B89001"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidParameter.ToManyInstanceIds	No more than 100 InstanceIds can be specified.	The error message returned because more than 100 instance IDs are specified.
403	InvalidParameter.InvalidInstanceIdAndVpcId	The parameter InstanceId and VpcId are not allowed to be empty at the same time.	The error message returned because neither InstanceId nor VpcId is specified.
403	InvalidInstanceId.NotBelong	The specified instance is not belong to you.	The error message returned because the specified instance does not exist in your account.
403	InvalidVpc.NotBelong	The specified vpc is not belong to you.	The error message returned because the specified VPC does not exist in your account.

2.1.2.1.10.5. DetachClassicLinkVpc

You can call this operation to unlink a classic network-type instance from a virtual private cloud (VPC) by removing the ClassicLink connection between them. After the instance is unlinked from the VPC, they can no longer communicate with each other.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DetachClassicLinkVpc	The operation that you want to perform. Set the value to DetachClassicLinkVpc.
InstanceId	String	Yes	i-bp67acfmxazb4p****	The ID of the classic network-type instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the classic network-type instance. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	Yes	vpc-bp67acfmxazb4p****	The ID of the VPC to which the instance is linked.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DetachClassicLinkVpc
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-bp67acfmxazb4p****
&InstanceId=i-bp67acfmxazb4p****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachClassicLinkVpcResponse>
      <RequestId>C0003E8B-B930-4F59-ADC0-0E209A9012A8</RequestId>
</DetachClassicLinkVpcResponse>
```

`JSON` format

```
{
    "RequestId": "C0003E8B-B930-4F59-ADC0-0E209A9012A8"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidInstanceId.MalFormed	The specified instance is not a classic network instance.	The error returned because the specified instance is not in the classic network.
403	OperationDenied	The instances are not allowed to detach from the linked vpc.	The error message returned because the instance cannot be unlinked from the VPC.

HTTP status code	Error code	Error message	Description
403	InvalidParameter.InvalidInstanceIdAndVpcId	The parameter InstanceId and VpcId are not allowed to be empty at the same time.	The error message returned because neither InstanceId nor VpcId is specified.
403	InvalidInstanceId.NotFound	The specified instance does not exist.	The error message returned because the specified InstanceId parameter does not exist.
403	InvalidStatus.InstanceStatus	The specified instance status is not support this operation ,expect status is running or shutted.	The error message returned because the operation is not supported while the instance is in the current state. The instance must be in the Running or Stopped state.
403	InvalidInstanceId.NotBelong	The specified instance is not belong to you.	The error message returned because the specified instance does not exist in your account.
403	Forbidden.SubUser	User not authorized to operate on the specified resource.	The error message returned because the RAM user is not authorized to manage this resource.
403	InvalidStatus.InstanceStatus	The specified instance status does not support this operation, expected status is Running or Stopped.	The error message returned because the operation is not supported while the instance is in the current state. The instance must be in the Running or Stopped state.

2.1.2.1.11. Security groups

2.1.2.1.11.1. CreateSecurityGroup

You can call this operation to create a security group. For a new security group, only instances in the security group can access each other by default. Access requests to the security group from outside are denied. If you want to accept requests from resources on the Internet or requests from instances in other security groups, you can call the AuthorizeSecurityGroup operation to grant access permissions to those resources or instances.

Description

When you call this operation, take note of the following items:

- You can create a maximum of 100 security groups within a single region.
- To create a security group of the VPC type, you must specify the VpcId parameter.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSecurityGroup	The operation that you want to perform. Set the value to CreateSecurityGroup.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the security group. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	No	vpc-bp1opxu1zkhn00gzv****	The ID of the VPC in which to create the security group.
Description	String	No	SecurityGroupTestDescription	The description of the security group. The description must be 2 to 256 characters in length and cannot start with `http://` or `https://`. This parameter is empty by default.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
SecurityGroupName	String	No	SecurityGroupTestName	The name of the security group. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with `http://` or `https://`. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
SecurityGroupType	String	No	enterprise	The type of the security group. Valid values: • normal: basic security group • enterprise: advanced security group

Parameter	Type	Required	Example	Description
Tag.N.value	String	No	null	The value of tag N to be bound to the security group. **Note** We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	null	The key of tag N to be bound to the security group. **Note** We recommend that you use the Tag.N.Key parameter to ensure future compatibility.
Tag.N.Key	String	No	Test	The key of tag N to be bound to the security group. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain `http://` or `https://`.
Tag.N.Value	String	No	Test	The value of tag N to be bound to the security group. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain `http://` or `https://`.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which to assign the security group.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SecurityGroupId	String	sg-bp1fg655nh68xyz9****	The ID of the security group.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateSecurityGroup
&RegionId=cn-qingdao-env17-d01
&Description=SecurityGroupTestDescription
&VpcId=vpc-bp1opxu1zkhn00gzv****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSecurityGroupResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
      <SecurityGroupId>sg-bp1fg655nh68xyz9****</SecurityGroupId>
</CreateSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984",
    "SecurityGroupId": "sg-bp1fg655nh68xyz9****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidDescription.Malformed	The specified parameter "Description" is not valid.	The error message returned because the specified Description parameter is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
403	QuotaExceed.SecurityGroup	The maximum number of security groups is reached.	The error message returned because the maximum number of security groups has been reached. Submit a ticket to request a quota increase.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VpcId parameter does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidSecurityGroupName.Malformed	Specified security group name is not valid.	The error message returned because the specified SecurityGroupName parameter is invalid. By default, the SecurityGroupName parameter is empty. If this parameter is specified, the specified name is displayed in the ECS console. The name must be 2 to 128 characters in length. It must start with a letter and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name cannot start with http:// or https://.
400	InvalidSecurityGroupDiscription.Malformed	Specified security group description is not valid.	The error message returned because the specified Description parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidVpcId.NotFound	vpc id must not empty when only support vpc vm.	The error message returned because the VpcId parameter is not specified.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the operation is not supported while the VPC is in the current state.
400	InvalidTagKey.Malformed	Specified tag key is not valid.	The error message returned because the specified tag key is invalid.
400	InvalidTagValue.Malformed	Specified tag value is not valid.	The error message returned because the specified tag value is invalid.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.

HTTP status code	Error code	Error message	Description
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
403	IdempotentProcessing	The previous idempotent request(s) is still processing.	The error message returned because the previous idempotent request is being processed. Try again later.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.11.2. AuthorizeSecurityGroup

You can call this operation to create an inbound security group rule. The created rule allows or denies the inbound traffic from other devices to the ECS instances in the security group to which the rule belongs.

Description

In the security group-related API documents, inbound traffic refers to the traffic sent by the source device and received at the destination device.

When you call this operation, take note of the following items:

- The total number of outbound and inbound security group rules in each security group cannot exceed 200.
- The priority (`Priority`) of a security group rule ranges from 1 to 100. A smaller value indicates a higher priority.
- When multiple security group rules have the same priority, drop (`drop`) rules take precedence.
- The source devices can belong to a specified range of IP addresses (SourceCidrIp) or can be ECS instances in another security group (SourceGroupId).
- If the rule to be created matches an existing rule, the AuthorizeSecurityGroup operation succeeds

but no rule is created.

- You can determine a security group rule by specifying one of the following groups of parameters. You cannot determine a security group rule by specifying a single parameter.
  - Parameters used to determine an inbound security group rule that controls access from a specified range of IP addresses: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, and SourceCidrIp. For a security group of the classic network type, you can set the NicType parameter to internet or intranet. For a security group of the VPC type, you can set the NicType parameter only to intranet. Sample request:

```
https://ecs.example.com/?Action=AuthorizeSecurityGroup
&SecurityGroupId=sg-F876FF7**
&SourceCidrIp=10.0.0.0/8
&IpProtocol=tcp
&PortRange=22/22
&NicType=intranet
&Policy=accept
&<Common request parameters>
```

  - Parameters used to determine an inbound security group rule that controls access from another security group: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, SourceGroupOwnerAccount, and SourceGroupId. To create an inbound security group rule to control access from another security group, you can set the NicType parameter only to intranet. For mutual access between security groups of the classic network type, you can allow or deny another security group in the same region access to your security group. The security group that is allowed access to your security group can belong to your own Apsara Stack tenant account or another Apsara Stack tenant specified by the SourceGroupOwnerAccount parameter. For mutual access between security groups of the VPC type, you can allow or deny another security group in the same VPC access to your security group. Sample request:

```
https://ecs.example.com/?Action=AuthorizeSecurityGroup
&SecurityGroupId=sg-F876FF7**
&SourceGroupId=sg-1651FBB**
&SourceGroupOwnerAccount=test@aliyun.com
&IpProtocol=tcp
&PortRange=22/22
&NicType=intranet
&Policy=drop
&<Common request parameters>
```

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AuthorizeSecurityGroup	The operation that you want to perform. Set the value to AuthorizeSecurityGroup.

Parameter	Type	Required	Example	Description
IpProtocol	String	Yes	all	The transport layer protocol. The values of this parameter are case-sensitive. Valid values: • tcp • udp • icmp • gre • all: All protocols are supported. **Note** IpProtocol can be set to icmp only for IPv4 addresses.
PortRange	String	Yes	22/22	The range of destination ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to all, the port range is -1/-1, which indicates all ports.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the destination security group.

Parameter	Type	Required	Example	Description
SourceGroupId	String	No	sg-bp67acfmxazb4pj***	The ID of the source security group. At least one of SourceGroupId and SourceCidrIp must be specified. • If SourceGroupId is specified but SourceCidrIp is not, the NicType parameter can be set only to intranet. • If both SourceGroupId and SourceCidrIp are specified, SourceCidrIp takes precedence.
SourceGroupOwnerId	Long	No	155780923770	The ID of the Apsara Stack tenant account that manages the source security group when you create a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access permissions are configured for another security group managed by your account. • If SourceCidrIp is specified, the SourceGroupOwnerId parameter is ignored.
SourceGroupOwnerAccount	String	No	test@aliyun.com	The Apsara Stack tenant account that manages the source security group when you create a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access permissions are configured for another security group managed by your account. • If SourceCidrIp is specified, the SourceGroupOwnerAccount parameter is ignored.
SourceCidrIp	String	No	10.0.0.0/8	The range of source IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.

Parameter	Type	Required	Example	Description
Ipv6SourceCidrIp	String	No	2001:250:6000::***	The range of source IPv6 addresses. IPv6 addresses and CIDR blocks are supported. **Note** Only IPv6 addresses of VPC-type instances are supported. This parameter is empty by default.
SourcePortRange	String	No	22/22	The range of source ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to all, the port range is -1/-1, which indicates all ports.
DestCidrIp	String	No	10.0.0.0/8	The range of destination IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.

Parameter	Type	Required	Example	Description
Ipv6DestCidrIp	String	No	2001:250:6000::***	The range of destination IPv6 addresses. IPv6 addresses and CIDR blocks are supported. **Note** Only IPv6 addresses of VPC-type instances are supported. This parameter is empty by default.
Policy	String	No	accept	The access control policy. Default value: accept. Valid values: • accept: allows access. • drop: denies access without returning a rejection response. In this case, the request times out or the connection fails to be established.
Priority	String	No	1	The priority of the security group rule. A smaller value indicates a higher priority. Valid values: 1 to 100. Default value: 1.

NicType	String	No	intranet	The NIC type of the security group rule when the security group is in the classic network. Valid values:
				• internet: public NIC
				• intranet: internal NIC
				  ◦ If the security group is in a VPC, the parameter is set to intranet by default and cannot be modified.
				  ◦ If DestGroupId is specified but DestCidrIp is not, this parameter can be set only to intranet.
				Default value: internet.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Description	String	No	Manually authorize SSH port 22 - RuleDemo	The description of the security group rule. The description must be 1 to 512 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AuthorizeSecurityGroup
&SecurityGroupId=sg-bp67acfmxazb4ph***
&SourceCidrIp=10.0.0.0/8
&IpProtocol=tcp
&PortRange=22/22
&NicType=intranet
&Policy=accept
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AuthorizeSecurityGroupResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</AuthorizeSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
404	InvalidSourceGroupId.NotFound	The SourceGroupId provided does not exist in our records.	The error message returned because the specified SourceGroupId parameter does not exist.
400	OperationDenied	The specified IpProtocol does not exist or IpProtocol and PortRange do not match.	The error message returned because the specified IpProtocol parameter does not exist or does not match the specified port range.
400	InvalidIpProtocol.Malformed	The specified parameter "PortRange" is not valid.	The error message returned because the specified IpProtocol or PortRange parameter is invalid.
403	InvalidSourceGroupId.Mismatch	NicType is required or NicType expects intranet.	The error message returned because the NicType parameter is not specified or is not set to intranet.
400	InvalidSourceCidrIp.Malformed	The specified parameter "SourceCidrIp" is not valid.	The error message returned because the specified SourceCidrIp parameter is invalid.
403	MissingParameter	The input parameter "SourceGroupId" or "SourceCidrIp" cannot be both blank.	The error message returned because both the SourceGroupId and SourceCidrIp parameters are empty.
400	InvalidPolicy.Malformed	The specified parameter "Policy" is not valid.	The error message returned because the specified Policy parameter is invalid.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidNicType.Mismatch	Specified nic type conflicts with the authorization record.	The error message returned because the specified NIC type conflicts with the authorization record.
403	AuthorizationLimitExceed	The limit of authorization records in the security group reaches.	The error message returned because the maximum number of rules in the security group has been reached.
403	InvalidParamter.Conflict	The specified SecurityGroupId should be different from the SourceGroupId.	The error message returned because the destination security group is the same as the source security group.
400	InvalidSourceGroupId.Mismatch	Specified security group and source group are not in the same VPC.	The error message returned because the destination security group and the source security group do not belong to the same VPC.
400	InvalidSourceGroup.NotFound	Specified source security group does not exist.	The error message returned because the specified inbound security group rule does not exist or relevant parameters are not specified.
400	VPCDisabled	Can't use the SecurityGroup in VPC.	The error message returned because the VPC does not support security groups.
400	InvalidPriority.Malformed	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidPriority.ValueNotSupported	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidNetworkType.Mismatch	The specified SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the destination security group is different from that of the source security group.

HTTP status code	Error code	Error message	Description
403	InvalidNetworkType.Conflict	The specified SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the destination security group is different from that of the source security group.
400	InvalidNicType.ValueNotSupported	The specified NicType is not valid.	The error message returned because the specified NicType parameter does not exist.
400	InvalidSecurityGroupDiscription.Malformed	The specified security group rule description is not valid.	The error message returned because the specified Description parameter is invalid.
400	InvalidSecurityGroup.InvalidNetworkType	The specified security group network type is not support this operation, please check the security group network types. For VPC security groups, ClassicLink must be enabled.	The error message returned because the operation is not supported while the security group is of the current network type. If the network type is VPC, ClassicLink must be enabled.
400	MissingParameter.Source	Either SourceCidrIp or SourceGroupId must be specified.	The error message returned because both the SourceCidrIp and SourceGroupId parameters are empty.
400	InvalidIpProtocol.ValueNotSupported	The parameter IpProtocol must be specified with case insensitive TCP, UDP, ICMP, GRE or All.	The error message returned because the specified IpProtocol parameter is invalid. The valid values of this parameter are tcp, udp, icmp, gre, and all.
400	InvalidSecurityGroupId.Malformed	The specified parameter "SecurityGroupId" is not valid.	The error message returned because the specified SecurityGroupId parameter is invalid.
400	InvalidParamter.Conflict	The specified SourceCidrIp should be different from the DestCidrIp.	The error message returned because the value of SourceCidrIp is the same as that of DestCidrIp.
500	InvalidGressFlow.Malformed	The specified parameter GressFlow is not valid,it cause by internal,try calling again.	The error message returned because the specified GressFlow parameter is invalid.
400	InvalidSourcePortRange.Malformed	The specified parameter "SourcePortRange" is not valid.	The error message returned because the specified SourcePortRange parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidParam.SourceIp	%s	The error message returned because the specified SourceCidrIp parameter is invalid.
400	InvalidParam.DestIp	%s	The error message returned because the specified DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6DestCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv6SourceCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv4ProtocolConflictWithIpv6Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv6 address under an IPv4 protocol by mistake.
400	InvalidParam.Ipv6ProtocolConflictWithIpv4Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv4 address under an IPv6 protocol by mistake.
400	ILLEGAL_IPV6_CIDR	%s	The error message returned because the specified IPv6 address is invalid.
400	InvalidDestCidrIp.Malformed	The specified parameter DestCidrIp is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.

2.1.2.1.11.3. AuthorizeSecurityGroupEgress

You can call this operation to create an outbound security group rule in a specific security group. The created rule allows or denies outbound traffic from the instances in the security group to other devices.

Description

In the security group-related API documents, inbound traffic refers to the traffic sent by the source device and received at the destination device.

When you call this operation, take note of the following items:

- The total number of outbound and inbound security group rules in each security group cannot exceed 200.
- You can set Policy to accept or drop for each security group rule to grant or deny access.
- The value of Priority ranges from 1 to 100. A smaller value indicates a higher priority.
- When several security group rules have the same priority, drop rules take precedence.
- The destination devices can be a specified range of IP addresses (DestCidrIp) or ECS instances in another security group (DestGroupId).
- If the rule to be created matches an existing rule, the AuthorizeSecurityGroupEgress operation succeeds but no rule is created.
- You can determine a security group rule by specifying one of the following groups of parameters. You cannot determine a security group rule by specifying a single parameter.
  - Parameters used to determine an outbound bound security group rule that controls access to a specified range of IP addresses: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, and DestCidrIp. Sample request:

```
https://ecs.example.com/?Action=AuthorizeSecurityGroupEgress
&SecurityGroupId=sg-bp67acfmxazb4ph***
&IpProtocol=icmp
&DestCidrIp=10.0.0.0/8
&PortRange=-1/-1
&NicType=intranet
&Policy=Allow
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

  - Parameters used to determine an outbound security group rule that controls access to another security group: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestGroupOwnerAccount, and DestGroupId. Sample request:

```
https://ecs.example.com/?Action=AuthorizeSecurityGroupEgress
&SecurityGroupId=sg-bp67acfmxazb4ph***
&DestGroupId=sg-bp67acfmxazb4pi***
&DestGroupOwnerAccount=Test@aliyun.com
&IpProtocol=tcp
&PortRange=22/22
&NicType=intranet
&Policy=Drop
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	AuthorizeSecurityGroupEgress	The operation that you want to perform. Set the value to AuthorizeSecurityGroupEgress.
IpProtocol	String	Yes	all	The transport layer protocol. The values are case-sensitive. Valid values: • icmp • gre • tcp • udp • all: All protocols are supported.
PortRange	String	Yes	80/80	The range of destination ports that correspond to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the source security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the source security group.

Parameter	Type	Required	Example	Description
DestGroupId	String	No	sg-bp67acfmxazb4pi***	The ID of the destination security group. • You must specify at least one of the DestGroupId and DestCidrIp parameters. • If DestGroupId is specified but DestCidrIp is not, the NicType parameter can be set only to intranet. • If both DestGroupId and DestCidrIp are specified, DestCidrIp takes precedence.
DestGroupOwnerId	Long	No	12345678910	The ID of the Apsara Stack tenant account that manages the destination security group when you create a security group rule across accounts. • If both DestGroupOwnerId and DestGroupOwnerAccount are empty, the rule is created to control access to another security group in your Apsara Stack tenant account. • If DestCidrIp is specified, DestGroupOwnerId is ignored.
DestGroupOwnerAccount	String	No	Test@aliyun.com	The Apsara Stack tenant account that manages the destination security group when you create a security group rule across accounts. • If both DestGroupOwnerAccount and DestGroupOwnerId are empty, the rule is created to control access to another security group in your Apsara Stack tenant account. • If DestCidrIp is specified, DestGroupOwnerAccount is ignored.
DestCidrIp	String	No	10.0.0.0/8	The range of destination IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.

Parameter	Type	Required	Example	Description
Ipv6DestCidrIp	String	No	2001:db8:1233:1a00::***	The range of destination IPv6 addresses. IPv6 addresses and CIDR blocks are supported. This parameter is empty by default. **Note** Only IP addresses in VPCs can be specified.
SourceCidrIp	String	No	10.0.0.0/8	The range of source IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.
Ipv6SourceCidrIp	String	No	2001:db8:1234:1a00::***	The range of source IPv6 addresses. IPv6 addresses and CIDR blocks are supported. This parameter is empty by default. **Note** Only IP addresses in VPCs can be specified.
SourcePortRange	String	No	80/80	The range of source ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.

Parameter	Type	Required	Example	Description
Policy	String	No	accept	The access control policy. Valid values: • accept: grants access. • drop: denies access without returning a rejection response. Default value: accept.
Priority	String	No	1	The priority of the security group rule. Valid values: 1 to 100. Default value: 1.

NicType	String	No	intranet	The NIC type of the security group rule when the security group is in the classic network. Valid values:
				• internet
				• intranet
				  ○ If the security group is in a VPC, the parameter is set to intranet by default and cannot be modified.
				  ○ If DestGroupId is specified but DestCidrIp is not, this parameter can be set only to intranet.
				Default value: internet.

ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Description	String	No	Manually authorize SSH port 22 - RuleDemo	The description of the security group rule. The description must be 1 to 512 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AuthorizeSecurityGroupEgress
&IpProtocol=tcp
&PortRange=80/80
&RegionId=cn-qingdao-env17-d01
&SecurityGroupId=sg-bp67acfmxazb4ph***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AuthorizeSecurityGroupEgressResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</AuthorizeSecurityGroupEgressResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
404	InvalidDestGroupId.NotFound	The DestGroupId provided does not exist in our records.	The error message returned because the specified DestGroupId parameter does not exist.

HTTP status code	Error code	Error message	Description
400	OperationDenied	The specified IpProtocol does not exist or IpProtocol and PortRange do not match.	The error message returned because the specified IpProtocol parameter does not exist or does not match the specified port range.
400	InvalidIpProtocol.Malformed	The specified parameter "PortRange" is not valid.	The error message returned because the specified IpProtocol or PortRange parameter is invalid.
403	InvalidDestGroupId.Mismatch	NicType is required or NicType expects intranet.	The error message returned because the NicType parameter is not specified or is not set to intranet.
400	InvalidDestCidrIp.Malformed	The specified parameter "DestCidrIp" is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.
403	MissingParameter	The input parameter "DestGroupId" or "DestCidrIp" cannot be both blank.	The error message returned because both the DestGroupId and DestCidrIp parameters are empty.
400	InvalidPolicy.Malformed	The specified parameter "Policy" is not valid.	The error message returned because the specified Policy parameter is invalid.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.
400	InvalidNicType.Mismatch	Specified nic type conflicts with the authorization record.	The error message returned because the specified NIC type conflicts with the authorization record.
403	AuthorizationLimitExceed	The limit of authorization records in the security group reaches.	The error message returned because the maximum number of rules in the security group has been reached.
403	InvalidParamter.Conflict	The specified SecurityGroupId should be different from the SourceGroupId.	The error message returned because the source security group is the same as the destination security group.

HTTP status code	Error code	Error message	Description
400	InvalidDestGroupId.Mismatch	Specified security group and destination group are not in the same VPC.	The error message returned because the specified source and destination security groups do not belong to the same VPC.
400	InvalidDestGroup.NotFound	Specified destination security group does not exist.	The error message returned because the specified DestGroupId parameter does not exist.
400	VPCDisabled	Can't use the SecurityGroup in VPC.	The error message returned because the VPC does not support security groups.
400	InvalidPriority.Malformed	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidPriority.ValueNotSupported	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidDestCidrIp.Malformed	The specified parameter DestCidrIp is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidNetworkType.Conflict	The specified SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the destination security group is different from that of the source security group.
403	InvalidSecurityGroup.IsSame	The authorized SecurityGroupId should be different from the DestGroupId.	The error message returned because the ID of the source security group is the same as that of the destination security group.
400	InvalidDestCidrIp.Malformed	The parameter DestCidrIp is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.

HTTP status code	Error code	Error message	Description
403	InvalidNetworkType.Conflict	The parameter SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the specified security group is different from that of the source group.
400	InvalidNicType.ValueNotSupported	The parameter NicType is not valid.	The error message returned because the specified NicType parameter is invalid.
400	InvalidSecurityGroupDiscription.Malformed	The specified security group rule description is not valid.	The error message returned because the specified Description parameter is invalid.
400	InvalidSecurityGroup.InvalidNetworkType	The specified security group network type is not support this operation, please check the security group network types. For VPC security groups, ClassicLink must be enabled.	The error message returned because the operation is not supported while the security group is of the current network type. You must enable ClassicLink for security groups in VPCs.
400	MissingParameter.Dest	Either DestCidrIp or DestGroupId must be specified.	The error message returned because both the DestCidrIp and DestGroupId parameters are empty.
400	InvalidIpProtocol.ValueNotSupported	The parameter IpProtocol must be specified with case insensitive TCP, UDP, ICMP, GRE or All.	The error message returned because the specified IpProtocol parameter is invalid. The valid values of this parameter are tcp, udp, icmp, gre, and all.
400	InvalidSecurityGroupId.Malformed	The specified parameter "SecurityGroupId" is not valid.	The error message returned because the specified SecurityGroupId parameter is invalid.
400	InvalidParamter.Conflict	The specified SourceCidrIp should be different from the DestCidrIp.	The error message returned because the value of SourceCidrIp is the same as that of DestCidrIp.
500	InvalidGressFlow.Malformed	The specified parameter GressFlow is not valid,it cause by internal,try calling again.	The error message returned because the specified GressFlow parameter is invalid.
400	InvalidSourcePortRange.Malformed	The specified parameter "SourcePortRange" is not valid.	The error message returned because the specified SourcePortRange parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidParam.SourceIp	%s	The error message returned because the specified SourceCidrIp parameter is invalid.
400	InvalidParam.DestIp	%s	The error message returned because the specified DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6DestCidrIp	%s	The error message returned because the specified Ipv6DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6SourceCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv4ProtocolConflictWithIpv6Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv6 address under an IPv4 protocol by mistake.
400	InvalidParam.Ipv6ProtocolConflictWithIpv4Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv4 address under an IPv6 protocol by mistake.
400	ILLEGAL_IPV6_CIDR	%s	The error message returned because the specified IPv6 address is invalid.

2.1.2.1.11.4. RevokeSecurityGroup

You can call this operation to delete an inbound security group rule. After the rule is deleted, the access control implemented by it is removed.

Description

In the security group-related API documents, traffic is sent by the source device and received at the destination device.

- You can determine an inbound rule by specifying one of the following groups of parameters. You cannot determine a security group rule by specifying only one parameter.

- Parameters used to specify an inbound security group rule that controls access from specified ranges of IP addresses: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp, and SourceCidrIp (optional).
- Parameters used to specify an inbound security group rule that controls access from a specified security group: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp (optional), DestGroupOwnerAccount, and DestGroupId.

- If the security group rule to be deleted does not exist, the RevokeSecurityGroup operation succeeds but no rule is deleted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RevokeSecurityGroup	The operation that you want to perform. Set the value to RevokeSecurityGroup.
IpProtocol	String	Yes	all	The transport layer protocol. The values are case-sensitive. Valid values: • icmp • icmpv6 • gre • tcp • udp • all: All protocols are supported.
PortRange	String	Yes	1/200	The range of destination ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the destination security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4p****	The ID of the destination security group.
DestCidrIp	String	No	10.0.0.0/8	The range of destination IPv4 addresses. IPv4 addresses and CIDR blocks are supported. Default value: 0.0.0.0/0.
Ipv6DestCidrIp	String	No	2001:db8:1233:1a00::***	The range of destination IPv6 addresses. IPv6 addresses and CIDR blocks are supported. **Note** Only IPv6 addresses in VPCs are supported. This parameter is empty by default.
SourceGroupId	String	No	sg-bp67acfmxazb4p****	The ID of the source security group. • You must specify at least one of the SourceGroupId and SourceCidrIp parameters. • If SourceGroupId is specified and SourceCidrIp is not, the value of NicType can be set only to intranet. • If both SourceGroupId and SourceCidrIp are specified, SourceCidrIp takes precedence.
SourceGroupOwnerId	Long	No	12345678910	The ID of the Apsara Stack tenant account that manages the source security group when you delete a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access control on another security group under your account is revoked. • If SourceCidrIp is specified, the SourceGroupOwnerId parameter is ignored.

Parameter	Type	Required	Example	Description
SourceGroupOwnerAccount	String	No	Test@aliyun.com	The Apsara Stack tenant account that manages the source security group when you delete a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access control on another security group under your account is revoked. • If SourceCidrIp is specified, the SourceGroupOwnerAccount parameter is ignored.
SourceCidrIp	String	No	10.0.0.0/8	The range of source IPv4 addresses. IPv4 addresses and CIDR blocks are supported. Default value: 0.0.0.0/0.
Ipv6SourceCidrIp	String	No	2001:db8:1234:1a00::***	The range of source IPv6 addresses. IPv6 addresses and CIDR blocks are supported. Note Only IPv6 addresses in VPCs are supported. This parameter is empty by default.
SourcePortRange	String	No	80/80	The range of source ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.

Parameter	Type	Required	Example	Description
Policy	String	No	accept	The access control policy. Valid values: • accept: grants access. • drop: denies access without returning a rejection response. Default value: accept.
Priority	String	No	1	The priority of the security group rule. Valid values: 1 to 100. Default value: 1.

NicType	String	No	intranet	The NIC type of the security group rule when the security group is in the classic network. Valid values:
				• internet
				• intranet
				  ○ If the security group is in a VPC, the parameter is set to intranet by default and cannot be modified.
				  ○ If DestGroupId is specified but DestCidrIp is not, the NicType parameter can be set only to intranet.
				Default value: internet.

ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Description	String	No	TestDescription	The description of the security group rule.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=RevokeSecurityGroup
&SecurityGroupId=sg-bp67acfmxazb4p****
&SourceGroupId=sg-bp67acfmxazb4p****
&SourceGroupOwnerAccount=Test@aliyun.com
&IpProtocol=tcp
&PortRange=80/80
&Priority=1
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RevokeSecurityGroupResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</RevokeSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
400	InvalidSecurityGroupId.Malformed	The specified SecurityGroupId is not valid.	The error message returned because the specified SecurityGroupId parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidIpProtocol.ValueNotSupported	The specified IpProtocol does not exist.	The error message returned because the specified IpProtocol parameter is invalid.
400	InvalidIpPortRange.Malformed	The specified parameter "PortRange" is not valid.	The error message returned because the specified PortRange parameter is invalid.
404	InvalidSourceGroupId.NotFound	The SourceGroupId provided does not exist in our records.	The error message returned because the specified SourceGroupId parameter does not exist.
403	InvalidNicType.Mismatch	Specified nic type conflicts with the authorization record.	The error message returned because the specified NIC type conflicts with the authorization record.
403	InvalidGroupAuthItem.NotFound	Specified group authorized item does not exist in our records.	The error message returned because the specified authorized security group does not exist.
400	InvalidSourceCidrIp.Malformed	The specified parameter "SourceCidrIp" is not valid.	The error message returned because the specified SourceCidrIp parameter is invalid.
400	MissingParameter	The input parameter "SourceGroupId" or "SourceCidrIp" cannot be both blank.	The error message returned because both the SourceGroupId and SourceCidrIp parameters are empty.
400	InvalidPolicy.Malformed	The specified parameter "Policy" is not valid.	The error message returned because the specified Policy parameter is invalid.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.
400	InvalidSourceGroupId.Mismatch	Specified security group and source group are not in the same VPC.	The error message returned because the destination security group and the source security group do not belong to the same VPC.
400	VPCDisabled	Can't use the SecurityGroup in VPC.	The error message returned because the VPC does not support security groups.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	MissingParameter.Source	Either SourceCidrIp or SourceGroupId must be specified.	The error message returned because both the SourceCidrIp and SourceGroupId parameters are empty.
400	InvalidIpProtocol.ValueNotSupported	The parameter IpProtocol must be specified with case insensitive TCP, UDP, ICMP, GRE or All.	The error message returned because the specified IpProtocol parameter is invalid. The valid values of this parameter are tcp, udp, icmp, gre, and all.
400	InvalidPriority.Malformed	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidPriority.ValueNotSupported	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidParamter.Conflict	The specified SecurityGroupId should be different from the SourceGroupId.	The error message returned because the destination security group is the same as the source security group.
400	InvalidDestCidrIp.Malformed	The specified parameter DestCidrIp is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.
400	InvalidParam.SourceIp	%s	The error message returned because the specified SourceCidrIp parameter is invalid.
400	InvalidParam.DestIp	%s	The error message returned because the specified DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6DestCidrIp	%s	The error message returned because the specified Ipv6DestCidrIp parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidParam.Ipv6SourceCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv4ProtocolConflictWithIpv6Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv6 address under an IPv4 protocol by mistake.
400	InvalidParam.Ipv6ProtocolConflictWithIpv4Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv4 address under an IPv6 protocol by mistake.
400	ILLEGAL_IPV6_CIDR	%s	The error message returned because the specified IPv6 address is invalid.
400	InvalidSourcePortRange.Malformed	The specified parameter "SourcePortRange" is not valid.	The error message returned because the specified SourcePortRange parameter is invalid.
400	InvalidSecurityGroupDiscription.Malformed	The specified security group rule description is not valid.	The error message returned because the specified Description parameter is invalid.

2.1.2.1.11.5. JoinSecurityGroup

You can call this operation to add an ECS instance to a security group.

Description

When you call this operation, take note of the following items:

- Before you add an ECS instance to a security group, make sure that the instance is in the **Stopped** (Stopped) or **Running** (Running) state.
- An instance can long to a maximum of five security groups.
- You can request to increase the maximum number of security groups to which an instance can belong to up to 16.
- Each security group can contain a maximum of 1,000 instances.
- The specified security group and the instance must belong to the same region.
- The security group and the instance must be of the same network type. If the network type is VPC,

the security group and the instance must belong to the same VPC.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	JoinSecurityGroup	The operation that you want to perform. Set the value to JoinSecurityGroup.
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the security group. You can call the DescribeSecurityGroups operation to query the most recent security group list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=JoinSecurityGroup
&InstanceId=i-bp67acfmxazb4ph***
&SecurityGroupId=sg-bp67acfmxazb4ph***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<JoinSecurityGroupResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</JoinSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
400	InstanceSecurityGroupLimitExceeded	Exceeding the allowed amount of security groups that an instance can be in.	The error message returned because the maximum number of security groups to which the instance can belong has been reached.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	SecurityGroupInstanceLimitExceeded	The maximum number of instances in a security group is exceeded.	The error message returned because the maximum number of instances in the specified security group has been reached.
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidInstanceId.Mismatch	Specified instance and security group are not in the same VPC.	The error message returned because the specified instance and security group do not belong to the same VPC or one of the following cases occurs: 1. The security group is of the VPC network type but the instance is not. 2. The instance is of the VPC network type but the security group is not.
403	InvalidInstanceId.AlreadyExists	The specified instance already exists in the specified security group.	The error message returned because the specified instance already exists in the specified security group.

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	SecurityGroupInstanceLimitExceeded	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	AclLimitExceed	%s	The error message returned because the value of AccessPoint exceeds the upper limit.
403	InstanceSecurityGroupLimitExceeded	%s	The error message returned because the maximum number of security groups to which the instance can belong has been reached.
400	InvalidInstanceId.Malformed	The specified parameter "InstanceId" is not valid.	The error message returned because the specified InstanceId parameter is invalid.

2.1.2.1.11.6. LeaveSecurityGroup

You can call this operation to remove an ECS instance from a security group.

Description

When you call this operation, take note of the following items:

- Before you remove an ECS instance from a security group, make sure that the instance is in the **Stopped** (Stopped) or **Running** (Running) state.
- An instance must belong to at least one security group. Therefore, if the instance to be removed belongs to only a single security group, the LeaveSecurityGroup request fails.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	LeaveSecurityGroup	The operation that you want to perform. Set the value to LeaveSecurityGroup.

Parameter	Type	Required	Example	Description
InstanceId	String	Yes	i-bp67acfmxazb4ph***	The ID of the instance.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the security group.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=LeaveSecurityGroup
&InstanceId=i-bp67acfmxazb4ph***
&SecurityGroupId=sg-bp67acfmxazb4ph***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<LeaveSecurityGroupResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</LeaveSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
403	InstanceLastSecurityGroup	The specified security group is the last security group for the instance.	The error message returned because the specified security group is the only security group to which the instance belongs.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the operation is not supported while the resource is in the current state.
403	InstanceLockedForSecurity	The specified operation is denied as your instance is locked for security reasons.	The error message returned because the operation is not supported while the instance is locked for security reasons.
403	InstanceNotInSecurityGroup	The instance not in the group.	The error message returned because the specified instance does not belong to the specified security group.
504	RequestTimeout	The request encounters an upstream server timeout.	The error message returned because the request is denied due to a timeout error of the upstream server.
400	InvalidInstanceId.Malformed	The specified parameter "InstanceId" is not valid.	The error message returned because the specified InstanceId parameter is invalid.

2.1.2.1.11.7. DeleteSecurityGroup

You can call this operation to delete a security group.

Description

Before you delete a security group, make sure that no instances exist in the security group and that the security group is not referenced by rules of other security groups. Otherwise, the DeleteSecurityGroup request fails. You can call the DescribeSecurityGroupReferences operation to check whether the security group is referenced by rules of other security groups.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSecurityGroup	The operation that you want to perform. Set the value to DeleteSecurityGroup.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp1fg655nh68xyz9i***	The ID of the security group.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteSecurityGroup
&RegionId=cn-qingdao-env17-d01
&SecurityGroupId=sg-bp1fg655nh68xyz9i***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSecurityGroupResponse>
       <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteSecurityGroupResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	DependencyViolation	There is still instance(s) in the specified security group.	The error message returned because instances exist in the security group. Remove the instances and then try again.
403	DependencyViolation	The specified security group has been authorized in another one.	The error message returned because the specified security group is referenced by rules of another security group.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.11.8. DescribeSecurityGroupAttribute

You can call this operation to query the rules of a security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSecurityGroupAttribute	The operation that you want to perform. Set the value to DescribeSecurityGroupAttribute.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp1gxw6bznjjvhu3g***	The ID of the security group.

Parameter	Type	Required	Example	Description

NicType	String	No	intranet	The NIC type of the security group rule.
				• Default value for rules of security groups in the classic network: internet. Valid values for rules of security groups in the classic network:
				  ○ internet
				  ○ intranet
				  Note You can query security group rules of only one NIC type in a single call. To query security group rules of both NIC types, call the operation twice.
				• Default value for rules of security groups in VPCs: intranet. Valid value for rules of security groups in VPCs:
				  ○ intranet
				  Note If you set this parameter to internet or leave this parameter empty, the value of intranet is automatically used.

Direction	String	No	all	The direction in which the security group rule is applied. Valid values: • egress: outbound • ingress: inbound • all: inbound and outbound Default value: all.

Response parameters

Parameter	Type	Example	Description
Description	String	FinanceDept	The description of the security group.

Parameter	Type	Example	Description
InnerAccessPolicy	String	Accept	The access control policy of the security group. Valid values: • Accept: All instances in the security group can communicate with each other. • drop: All instances in the security group are isolated from each other.
Permissions	Array of Permission		Details about the security group rules.
Permission			
CreateTime	String	2018-12-12T07:28:38Z	The time when the security group rule was created. The time is displayed in UTC.
Description	String	FinanceDept	The description of the security group.
DestCidrIp	String	0.0.0.0/0	The range of destination IP addresses for outbound access control
DestGroupId	String	sg-securitygroupid1	The ID of the destination security group for outbound access control.
DestGroupName	String	SecurityGuard	The name of the destination security group.
DestGroupOwnerAccount	String	SecurityGuard	The Apsara Stack tenant account that manages the destination security group.
Direction	String	ingress	The direction in which the security group rule is applied.
IpProtocol	String	TCP	The transport layer protocol.
Ipv6DestCidrIp	String	2001:db8:1233:1a00::***	The range of destination IPv6 addresses.
Ipv6SourceCidrIp	String	2001:db8:1234:1a00::***	The range of source IPv6 addresses.
NicType	String	intranet	The NIC type of the security group rule.

Parameter	Type	Example	Description
Policy	String	Accept	The access control policy.
PortRange	String	80/80	The port range.
Priority	String	1	The priority of the rule.
SourceCidrIp	String	0.0.0.0/0	The range of source IP addresses for inbound access control.
SourceGroupId	String	sg-securitygroupid2	The ID of the source security group for inbound access control.
SourceGroupName	String	FinanceDeptSourceG****	The name of the source security group.
SourceGroupOwnerAccount	String	FinanceGroupO****	The Apsara Stack tenant account that manages the source security group.
SourcePortRange	String	80/80	The source port range.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SecurityGroupId	String	sg-bp1gxw6bznjjvhu3g***	The ID of the destination security group.
SecurityGroupName	String	FinanceSecurityG****	The name of the security group.
VpcId	String	vpc-bp1opxu1zkhn00gzv2***	The ID of the VPC. If a VPC ID is returned, the network type of the security group is VPC. If no VPC ID is returned, the network type of the security group is classic network.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSecurityGroupAttribute
&SecurityGroupId=sg-bp1gxw6bznjjvhu3g***
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSecurityGroupAttributeResponse>
      <SecurityGroupId>sg-bp1gxw6bznjjvhu3g***</SecurityGroupId>
      <InnerAccessPolicy>Accept</InnerAccessPolicy>
      <SecurityGroupName>FinanceSecurityG****</SecurityGroupName>
      <Description>FinanceDept</Description>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <RequestId>A72322C1-47C0-491E-8088-8B17E4EA859F</RequestId>
      <Permissions>
            <Permission>
                  <SourceCidrIp>10.0.0.0/8</SourceCidrIp>
                  <Description></Description>
                  <DestCidrIp></DestCidrIp>
                  <NicType>intranet</NicType>
                  <DestGroupName></DestGroupName>
                  <PortRange>22/22</PortRange>
                  <DestGroupId></DestGroupId>
                  <Ipv6DestCidrIp></Ipv6DestCidrIp>
                  <Direction>ingress</Direction>
                  <Priority>1</Priority>
                  <IpProtocol>TCP</IpProtocol>
                  <SourcePortRange></SourcePortRange>
                  <SourceGroupOwnerAccount></SourceGroupOwnerAccount>
                  <Policy>Accept</Policy>
                  <CreateTime>2018-12-12T07:28:38Z</CreateTime>
                  <SourceGroupId></SourceGroupId>
                  <DestGroupOwnerAccount></DestGroupOwnerAccount>
                  <Ipv6SourceCidrIp></Ipv6SourceCidrIp>
                  <SourceGroupName></SourceGroupName>
            </Permission>
            <Permission>
                  <SourceCidrIp>0.0.0.0/0</SourceCidrIp>
                  <Description></Description>
                  <DestCidrIp></DestCidrIp>
                  <NicType>intranet</NicType>
                  <DestGroupName></DestGroupName>
                  <PortRange>443/443</PortRange>
                  <DestGroupId></DestGroupId>
                  <Ipv6DestCidrIp></Ipv6DestCidrIp>
                  <Direction>ingress</Direction>
                  <Priority>1</Priority>
                  <IpProtocol>TCP</IpProtocol>
                  <SourcePortRange></SourcePortRange>
                  <SourceGroupOwnerAccount></SourceGroupOwnerAccount>
                  <Policy>Accept</Policy>
                  <CreateTime>2018-12-12T07:28:38Z</CreateTime>
```

```
                <SourceGroupId></SourceGroupId>
                <DestGroupOwnerAccount></DestGroupOwnerAccount>
                <Ipv6SourceCidrIp></Ipv6SourceCidrIp>
                <SourceGroupName></SourceGroupName>
            </Permission>
            <Permission>
                <SourceCidrIp>10.0.0.0/8</SourceCidrIp>
                <Description></Description>
                <DestCidrIp></DestCidrIp>
                <NicType>intranet</NicType>
                <DestGroupName></DestGroupName>
                <PortRange>80/80</PortRange>
                <DestGroupId></DestGroupId>
                <Ipv6DestCidrIp></Ipv6DestCidrIp>
                <Direction>ingress</Direction>
                <Priority>1</Priority>
                <IpProtocol>TCP</IpProtocol>
                <SourcePortRange></SourcePortRange>
                <SourceGroupOwnerAccount></SourceGroupOwnerAccount>
                <Policy>Accept</Policy>
                <CreateTime>2018-12-12T07:28:38Z</CreateTime>
                <SourceGroupId></SourceGroupId>
                <DestGroupOwnerAccount></DestGroupOwnerAccount>
                <Ipv6SourceCidrIp></Ipv6SourceCidrIp>
                <SourceGroupName></SourceGroupName>
            </Permission>
            <Permission>
                <SourceCidrIp>10.0.0.0/8</SourceCidrIp>
                <Description></Description>
                <DestCidrIp></DestCidrIp>
                <NicType>intranet</NicType>
                <DestGroupName></DestGroupName>
                <PortRange>-1/-1</PortRange>
                <DestGroupId></DestGroupId>
                <Ipv6DestCidrIp></Ipv6DestCidrIp>
                <Direction>ingress</Direction>
                <Priority>1</Priority>
                <IpProtocol>ICMP</IpProtocol>
                <SourcePortRange>-1/-1</SourcePortRange>
                <SourceGroupOwnerAccount></SourceGroupOwnerAccount>
                <Policy>Accept</Policy>
                <CreateTime>2018-12-12T07:28:38Z</CreateTime>
                <SourceGroupId></SourceGroupId>
                <DestGroupOwnerAccount></DestGroupOwnerAccount>
                <Ipv6SourceCidrIp></Ipv6SourceCidrIp>
                <SourceGroupName></SourceGroupName>
            </Permission>
        </Permissions>
        <VpcId>vpc-bp1opxu1zkhn00gzv2***</VpcId>
</DescribeSecurityGroupAttributeResponse>
```

`JSON` format

```
{
```

```
{
    "SecurityGroupId": "sg-bp1gxw6bznjjvhu3g***",
    "InnerAccessPolicy": "Accept",
    "SecurityGroupName": "FinanceSecurityG****",
    "Description": "FinanceDept",
    "RegionId": "cn-qingdao-env17-d01",
    "RequestId": "A72322C1-47C0-491E-8088-8B17E4EA859F",
    "Permissions": {
        "Permission": [
            {
                "SourceCidrIp": "10.0.0.0/8",
                "Description": "",
                "DestCidrIp": "",
                "NicType": "intranet",
                "DestGroupName": "",
                "PortRange": "22/22",
                "DestGroupId": "",
                "Ipv6DestCidrIp": "",
                "Direction": "ingress",
                "Priority": 1,
                "IpProtocol": "TCP",
                "SourcePortRange": "",
                "SourceGroupOwnerAccount": "",
                "Policy": "Accept",
                "CreateTime": "2018-12-12T07:28:38Z",
                "SourceGroupId": "",
                "DestGroupOwnerAccount": "",
                "Ipv6SourceCidrIp": "",
                "SourceGroupName": ""
            },
            {
                "SourceCidrIp": "0.0.0.0/0",
                "Description": "",
                "DestCidrIp": "",
                "NicType": "intranet",
                "DestGroupName": "",
                "PortRange": "443/443",
                "DestGroupId": "",
                "Ipv6DestCidrIp": "",
                "Direction": "ingress",
                "Priority": 1,
                "IpProtocol": "TCP",
                "SourcePortRange": "",
                "SourceGroupOwnerAccount": "",
                "Policy": "Accept",
                "CreateTime": "2018-12-12T07:28:38Z",
                "SourceGroupId": "",
                "DestGroupOwnerAccount": "",
                "Ipv6SourceCidrIp": "",
                "SourceGroupName": ""
            },
            {
                "SourceCidrIp": "0.0.0.0/0",
                "Description": "",
                "DestCidrIp": ""
```

```
                "DestCidrIp": "",
                "NicType": "intranet",
                "DestGroupName": "",
                "PortRange": "80/80",
                "DestGroupId": "",
                "Ipv6DestCidrIp": "",
                "Direction": "ingress",
                "Priority": 1,
                "IpProtocol": "TCP",
                "SourcePortRange": "",
                "SourceGroupOwnerAccount": "",
                "Policy": "Accept",
                "CreateTime": "2018-12-12T07:28:38Z",
                "SourceGroupId": "",
                "DestGroupOwnerAccount": "",
                "Ipv6SourceCidrIp": "",
                "SourceGroupName": ""
            },
            {
                "SourceCidrIp": "10.0.0.0/8",
                "Description": "",
                "DestCidrIp": "",
                "NicType": "intranet",
                "DestGroupName": "",
                "PortRange": "-1/-1",
                "DestGroupId": "",
                "Ipv6DestCidrIp": "",
                "Direction": "ingress",
                "Priority": 1,
                "IpProtocol": "ICMP",
                "SourcePortRange": "-1/-1",
                "SourceGroupOwnerAccount": "",
                "Policy": "Accept",
                "CreateTime": "2018-12-12T07:28:38Z",
                "SourceGroupId": "",
                "DestGroupOwnerAccount": "",
                "Ipv6SourceCidrIp": "",
                "SourceGroupName": ""
            }
        ]
    },
    "VpcId": "vpc-bp1opxu1zkhn00gzv2***"
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
400	InvalidParamter	Invalid Parameter	The error message returned because a specified parameter is invalid.
400	InvalidSecurityGroupId.Malformed	The specified parameter "SecurityGroupId" is not valid.	The error message returned because the specified SecurityGroupId parameter is invalid.

2.1.2.1.11.9. DescribeSecurityGroups

You can call this operation to query basic information of security groups.

Description

Basic information of security groups includes their IDs and descriptions. Security groups are displayed in descending order of their IDs.

When you use Apsara Stack CLI to call an API operation, make sure that request parameter values of different data types are in required formats.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSecurityGroups	The operation that you want to perform. Set the value to DescribeSecurityGroups.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	No	vpc-bp67acfmxazb4p****	The ID of the VPC to which the security group belongs.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.
SecurityGroupIds	String	No	["sg-bp67acfmxazb4p****", "sg-bp67acfmxazb4p****", "sg-bp67acfmxazb4p****",....]	The IDs of security groups. The value is a JSON array that consists of up to 100 security group IDs. Separate multiple security group IDs with commas (,).
Tag.N.value	String	No	null	The value of tag N of the security group. **Note** We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	null	The key of tag N of the security group. **Note** We recommend that you use the Tag.N.Key parameter to ensure future compatibility.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N of the security group. Valid values of N: 1 to 20.
Tag.N.Value	String	No	TestValue	The value of tag N of the security group. Valid values of N: 1 to 20.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the security group belongs.
NetworkType	String	No	vpc	The network type of the security group. Valid values: • vpc • classic
SecurityGroupId	String	No	sg-bp67acfmxazb4p****	The ID of the security group.
SecurityGroupName	String	No	SGTestName	The name of the security group.
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Valid values: • true: The validity of the request is checked but the request is not made. Check items include whether your AccessKey pair is valid, whether RAM users are authorized, and whether the required parameters are specified. If the check fails, the corresponding error is returned. If the check succeeds, the DryRunOperation error code is returned. • false: The validity of the request is checked. If the check succeeds, a 2XX HTTP status code is returned and the request is made. Default value: false.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RegionId	String	cn-qingdao-env17-d01	The region ID of the security group.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SecurityGroups	Array of SecurityGroup		Details about the security groups.
SecurityGroup			
AvailableInstanceAmount	Integer	880	This parameter is in invitational preview and not available.
CreationTime	String	2017-12-05T22:40:00Z	The time when the security group was created. The time follows the ISO 8601 standard in the yyyy-MM-ddThh:mmZ format. The time is displayed in UTC.
Description	String	TestDescription	The description of the security group.
EcsCount	Integer	120	This parameter is in invitational preview and not available.
ResourceGroupId	String	rg-bp67acfmxazb4p****	The ID of the resource group to which the security group belongs.
SecurityGroupId	String	sg-bp67acfmxazb4p****	The ID of the security group.
SecurityGroupName	String	SGTestName	The name of the security group.
SecurityGroupType	String	normal	The type of the security group. Valid values: • normal: basic security group • enterprise: advanced security group

Parameter	Type	Example	Description
ServiceID	Long	111111111	This parameter is in invitational preview and not available.
ServiceManaged	Boolean	false	This parameter is in invitational preview and not available.
Tags	Array of Tag		The tags of the security groups.
Tag			
TagKey	String	TestKey	The tag key of the security group.
TagValue	String	TestValue	The tag value of the security group.
VpcId	String	vpc-bp67acfmxazb4p****	The ID of the VPC to which the security group belongs.
TotalCount	Integer	49	The total number of security groups.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSecurityGroups
&RegionId=cn-qingdao-env17-d01
&PageSize=1
&PageNumber=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSecurityGroupsResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>49</TotalCount>
      <PageSize>1</PageSize>
      <RegionId>cn-qingdao-env17-d01</RegionId>
      <RequestId>A1707FC0-430C-423A-B624-284046B20399</RequestId>
      <SecurityGroups>
            <SecurityGroup>
                  <CreationTime>2019-11-01T06:08:46Z</CreationTime>
                  <SecurityGroupId>sg-bp67acfmxazb4p****</SecurityGroupId>
                  <Description></Description>
                  <SecurityGroupName>SGTestName</SecurityGroupName>
                  <ResourceGroupId></ResourceGroupId>
                  <SecurityGroupType>normal</SecurityGroupType>
                  <VpcId>vpc-bp67acfmxazb4p****</VpcId>
            </SecurityGroup>
      </SecurityGroups>
</DescribeSecurityGroupsResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 49,
    "PageSize": 1,
    "RegionId": "cn-qingdao-env17-d01",
    "RequestId": "A1707FC0-430C-423A-B624-284046B20399",
    "SecurityGroups": {
        "SecurityGroup": [
            {
                "CreationTime": "2019-11-01T06:08:46Z",
                "Tags": {
                    "Tag": []
                },
                "SecurityGroupId": "sg-bp67acfmxazb4p****",
                "Description": "",
                "SecurityGroupName": "SGTestName",
                "ResourceGroupId": "",
                "SecurityGroupType": "normal",
                "VpcId": "vpc-bp67acfmxazb4p****"
            }
        ]
    }
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.11.10. DescribeSecurityGroupReferences

You can call this operation to query whether one or more security groups are referenced by rules of other security groups.

Description

When you call this operation, take note of the following items:

- Security group-level authorization includes authorization for inbound and outbound traffic.
- A maximum of 100 entries can be returned each time.
- If you fail to delete a security group by calling the DeleteSecurityGroup operation, you can call the DescribeSecurityGroupReferences operation to check whether the security group is referenced by rules of other security groups. If the security group is referenced by a rule of another security group, you must remove the reference before you can delete the security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSecurityGroupReferences	The operation that you want to perform. Set the value to DescribeSecurityGroupReferences.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group.
SecurityGroupId.N	RepeatList	Yes	sg-bp1euoep32o6kvrw****	The ID of security group N. Valid values of N: 1 to 10.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Parameter	Type	Example	Description
SecurityGroupReferences	Array of SecurityGroupReference		Details about the references to the specified security groups.
SecurityGroupReference			
ReferencingSecurityGroups	Array of ReferencingSecurityGroup		Details about the security groups whose rules are referencing the specified security groups.
ReferencingSecurityGroup			
AliUid	String	1557809237**	The ID of the Apsara Stack tenant account to which the security group belongs.
SecurityGroupId	String	sg-bp1euoep32o6kvrw****	The ID of the security group whose rules reference the specified security group
SecurityGroupId	String	sg-bp67acfmxazb4pj****	The ID of the specified security group.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeSecurityGroupReferences
&RegionId=cn-qingdao-env17-d01
&SecurityGroupId.1=sg-bp1euoep32o6kvrw****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSecurityGroupReferencesResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
      <SecurityGroupReferences>
          <SecurityGroupReference>
              <SecurityGroupId>sg-bp1euoep32o6kvrw****</SecurityGroupId>
              <ReferencingSecurityGroups>
                  <ReferencingSecurityGroup>
                      <SecurityGroupId>sg-bp67acfmxazb4pi****</SecurityGroupId>
                      <AliUid>155780923770</AliUid>
                  </ReferencingSecurityGroup>
                  <ReferencingSecurityGroup>
                      <SecurityGroupId>sg-bp67acfmxazb4pj****</SecurityGroupId>
                      <AliUid>155780923770</AliUid>
                  </ReferencingSecurityGroup>
              </ReferencingSecurityGroups>
          </SecurityGroupReference>
      </SecurityGroupReferences>
</DescribeSecurityGroupReferencesResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984",
    "SecurityGroupReferences": [
        {
            "SecurityGroupId": "sg-bp1euoep32o6kvrw****",
            "SecurityReferencingGroups": [
                {
                    "AliUid": "1557809237**",
                    "SecurityGroupId": "sg-bp67acfmxazb4pi****"
                },
                {
                    "AliUid": "1557809237**",
                    "SecurityGroupId": "sg-bp67acfmxazb4pj****"
                }
            ]
        }
    ]
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidSecurityGroupId.Malformed	The specified parameter SecurityGroupId is essential and size should less than 10	The error message returned because the SecurityGroupId.N parameter must be specified and the value of N cannot exceed 10.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The SecurityGroupId provided does not exist in our records.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.

2.1.2.1.11.11. ModifySecurityGroupAttribute

You can call this operation to modify the name or description of a security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityGroupAttribute	The operation that you want to perform. Set the value to ModifySecurityGroupAttribute.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4p****	The ID of the security group.
SecurityGroupName	String	No	SecurityGroupTestName	The new name of the security group. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-). This parameter is empty by default.
Description	String	No	TestDescription	The new description of the security group. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifySecurityGroupAttribute
&SecurityGroupId=sg-bp67acfmxazb4p****
&RegionId=cn-qingdao-env17-d01
&SecurityGroupName=SecurityGroupTestName
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityGroupAttributeResponse>
       <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</ModifySecurityGroupAttributeResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.

HTTP status code	Error code	Error message	Description
400	InvalidSecurityGroupName.Malformed	Specified security group name is not valid.	The error message returned because the specified SecurityGroupName parameter is invalid. By default, the SecurityGroupName parameter is empty. If this parameter is specified, the specified name is displayed on the console. The name must be 2 to 128 characters in length. It must start with a letter and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name cannot start with http:// or https://.
400	InvalidSecurityGroupDiscription.Malformed	Specified security group description is not valid.	The error message returned because the specified Description parameter is invalid.

2.1.2.1.11.12. ModifySecurityGroupPolicy

You can call this operation to modify the internal access policy of a basic security group. The internal access policies of advanced security groups cannot be modified.

Description

When you call this operation, take note of the following items:

- When InnerAccessPolicy is set to Accept for a security group, the instances in the security group can communicate with each other. The Accept internal access policy takes precedence over user-created security group rules to keep instances in the security group accessible to each other.
- When InnerAccessPolicy is set to Drop for a security group, the instances in the security group are isolated from each other. User-created security group rules take precedence over the Drop internal access policy and can be used to allow access between the instances. For example, you can call the AuthorizeSecurityGroup operation to create an inbound security group rule that allows the instances in the security group to communicate with each other.
- You can call the DescribeSecurityGroupAttribute operation to query the internal access policy of a security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityGroupPolicy	The operation that you want to perform. Set the value to ModifySecurityGroupPolicy.

Parameter	Type	Required	Example	Description
InnerAccessPolicy	String	Yes	Drop	The internal access policy of the security group. Valid values: • Accept: All instances in the security group can communicate with each other. • Drop: All instances in the security group are isolated from each other. The values are case-insensitive.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the security group.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifySecurityGroupPolicy
&RegionId=cn-qingdao-env17-d01
&SecurityGroupId=sg-bp67acfmxazb4ph***
&InnerAccessPolicy=Drop
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityGroupPolicyResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876xxxxxxxx</RequestId>
</ModifySecurityGroupPolicyResponse>
```

`JSON` format

```
{
    "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidSecurityGroupId.Malformed	The SecurityGroupId is invalid. Only letters, numbers and underscores are supported. Maximum length is 100 characters.	The error message returned because the specified SecurityGroupId parameter is invalid. The security group ID can be up to 100 characters in length and can contain only letters, digits, and underscores (_).
400	InvalidPolicy.Malformed	The Policy is invalid. Only 'Accept' and 'Drop' are supported. Ignore case.	The error message returned because the specified InnerAccessPolicy parameter is invalid. The valid values of this parameter are Accept and Drop, and these values are case-insensitive.
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.

2.1.2.1.11.13. ModifySecurityGroupRule

You can call this operation to modify the description of an inbound rule of a security group. You can call this operation to modify only the description of an inbound security group rule. If you want to modify other attributes such as the policy, port range, and authorization objects of the rule, log on to the ECS console.

Description

In the security group-related API documents, inbound traffic refers to the traffic that is sent from the source device and received at the destination device.

You can determine an inbound rule by specifying one of the following groups of parameters. You cannot determine a security group rule by specifying only one parameter.

- Parameters used to specify an inbound security group rule that controls access from specified ranges of IP addresses: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp, and SourceCidrIp (optional).
- Parameters used to control access from other security groups: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp (optional), DestGroupOwnerAccount, and DestGroupId.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityGroupRule	The operation that you want to perform. Set the value to ModifySecurityGroupRule.
IpProtocol	String	Yes	all	The transport layer protocol. The values are case-insensitive. Valid values: • icmp • icmpv6 • gre • tcp • udp • all: All protocols are supported.

Parameter	Type	Required	Example	Description
PortRange	String	Yes	80/80	The range of destination ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the destination security group. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId	String	Yes	sg-bp67acfmxazb4p****	The ID of the destination security group.
SourceGroupId	String	No	sg-bp67acfmxazb4p****	The ID of the source security group. You must specify at least one of the SourceGroupId and SourceCidrIp parameters. If SourceGroupId is specified but SourceCidrIp is not, the NicType parameter can be set only to intranet. If both SourceGroupId and SourceCidrIp are specified, SourceCidrIp takes precedence.

Parameter	Type	Required	Example	Description
SourceGroupOwnerId	Long	No	12345678910	The ID of the Apsara Stack tenant account that manages the source security group when you configure a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access permissions are configured for another security group managed by your account. • If SourceCidrIp is specified, the SourceGroupOwnerId parameter is ignored.
SourceGroupOwnerAccount	String	No	Test@aliyun.com	The Apsara Stack tenant account that manages the source security group when you configure a security group rule across accounts. • If both SourceGroupOwnerId and SourceGroupOwnerAccount are empty, access permissions are configured for another security group managed by your account. • If SourceCidrIp is specified, the SourceGroupOwnerAccount parameter is ignored.
SourceCidrIp	String	No	10.0.0.0/8	The range of source IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.
Ipv6SourceCidrIp	String	No	2001:db8:1233:1a00::***	The range of source IPv6 addresses. IPv6 addresses and CIDR blocks are supported. **Note** Only IPv6 addresses in VPCs are supported. This parameter is empty by default.

Parameter	Type	Required	Example	Description
SourcePortRange	String	No	80/80	The range of source ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When IpProtocol is set to all, the port range is -1/-1, which indicates all ports.
DestCidrIp	String	No	10.0.0.0/8	The range of destination IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.
Ipv6DestCidrIp	String	No	2001:db8:1234:1a00::***	The range of destination IPv6 addresses. IPv6 addresses and CIDR blocks are supported. Note Only IPv6 addresses in VPCs are supported. This parameter is empty by default.
Policy	String	No	accept	The access control policy. Valid values: • accept: grants access. • drop: denies access without returning a rejection response. Default value: accept.
Priority	String	No	1	The priority of the security group rule. Valid values: 1 to 100. Default value: 1.

Parameter	Type	Required	Example	Description
NicType	String	No	intranet	The NIC type of the security group rule when the security group is in the classic network. Valid values: • internet • intranet Default value: internet. This parameter can be set only to intranet in the following cases: • For rules of a security group in a VPC, this parameter is set to intranet by default and cannot be modified. • If DestGroupId is specified but DestCidrIp is not, this parameter must be set to intranet.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Description	String	No	This is a new security group rule.	The description of the security group rule. The description must be 1 to 512 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifySecurityGroupRule
&SecurityGroupId=sg-bp67acfmxazb4p****
&SourceGroupId=sg-bp67acfmxazb4p****
&SourceGroupOwnerAccount=Test@aliyun.com
&IpProtocol=all
&PortRange=80/80
&Policy=accept
&Description=This is a new security group rule.
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityGroupRuleResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</ModifySecurityGroupRuleResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
404	InvalidSourceGroupId.NotFound	The SourceGroupId provided does not exist in our records.	The error message returned because the specified SourceGroupId parameter does not exist.
400	OperationDenied	The specified IpProtocol does not exist or IpProtocol and PortRange do not match.	The error message returned because the specified IpProtocol parameter does not exist or does not match the specified port range.
400	InvalidIpProtocol.Malformed	The specified parameter "PortRange" is not valid.	The error message returned because the specified IpProtocol or PortRange parameter is invalid.

HTTP status code	Error code	Error message	Description
403	InvalidSourceGroupId.Mismatch	NicType is required or NicType expects intrnet.	The error message returned because the NicType parameter is not specified or is not set to intranet.
400	InvalidSourceCidrIp.Malformed	The specified parameter "SourceCidrIp" is not valid.	The error message returned because the specified SourceCidrIp parameter is invalid.
403	MissingParameter	The input parameter "SourceGroupId" or "SourceCidrIp" cannot be both blank.	The error message returned because both the SourceGroupId and SourceCidrIp parameters are empty.
400	InvalidPolicy.Malformed	The specified parameter "Policy" is not valid.	The error message returned because the specified Policy parameter is invalid.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.
400	InvalidNicType.Mismatch	Specified nic type conflicts with the authorization record.	The error message returned because the specified NIC type conflicts with the authorization record.
403	AuthorizationLimitExceed	The limit of authorization records in the security group reaches.	The error message returned because the maximum number of rules in the security group has been reached.
403	InvalidParamter.Conflict	The specified SecurityGroupId should be different from the SourceGroupId.	The error message returned because the destination security group is the same as the source security group.
400	InvalidSourceGroupId.Mismatch	Specified security group and source group are not in the same VPC.	The error message returned because the destination security group and the source security group do not belong to the same VPC.
400	InvalidSourceGroup.NotFound	Specified source security group does not exist.	The error message returned because the specified inbound security group rule does not exist or relevant parameters are not specified.

HTTP status code	Error code	Error message	Description
400	VPCDisabled	Can't use the SecurityGroup in VPC.	The error message returned because the VPC does not support security groups.
400	InvalidPriority.Malformed	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidPriority.ValueNotSupported	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.
403	InvalidNetworkType.Mismatch	The specified SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the destination security group is different from that of the source security group.
400	InvalidSecurityGroupDiscription.Malformed	The specified security group rule description is not valid.	The error message returned because the specified Description parameter is invalid.
404	SecurityGroupRule.NotFound	The target security group rule not exist.	The error message returned because the specified security group rule does not exist.
400	MissingParameter.Source	Either SourceCidrIp or SourceGroupId must be specified.	The error message returned because both the SourceCidrIp and SourceGroupId parameters are empty.
400	InvalidIpProtocol.ValueNotSupported	The parameter IpProtocol must be specified with case insensitive TCP, UDP, ICMP, GRE or All.	The error message returned because the specified IpProtocol parameter is invalid. The valid values of this parameter are tcp, udp, icmp, gre, and all.
400	InvalidParam.SourceIp	%s	The error message returned because the specified SourceCidrIp parameter is invalid.
400	InvalidParam.DestIp	%s	The error message returned because the specified DestCidrIp parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidParam.Ipv6DestCidrIp	%s	The error message returned because the specified Ipv6DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6SourceCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv4ProtocolConflictWithIpv6Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv6 address under an IPv4 protocol by mistake.
400	InvalidParam.Ipv6ProtocolConflictWithIpv4Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv4 address under an IPv6 protocol by mistake.
400	ILLEGAL_IPV6_CIDR	%s	The error message returned because the specified IPv6 address is invalid.
400	InvalidSourcePortRange.Malformed	The specified parameter "SourcePortRange" is not valid.	The error message returned because the specified SourcePortRange parameter is invalid.
400	InvalidSecurityGroupId.Malformed	The specified parameter "SecurityGroupId" is not valid.	The error message returned because the specified SecurityGroupId parameter is invalid.

2.1.2.1.11.14. ModifySecurityGroupEgressRule

You can call this operation to modify the description of outbound rules of a security group. You can modify only the description by calling this operation. If you want to modify the policies, port ranges, and authorization objects of security group rules, log on to the ECS console.

Description

You can determine an outbound rule by specifying one of the following groups of parameters. You cannot determine a security group rule by specifying only one parameter.

- Parameters used to specify an outbound security group rule that controls access to a specified range

of IP addresses: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp, and SourceCidrIp (optional).

- Parameters used to specify an outbound security group rule that controls access to another security group: IpProtocol, PortRange, SourcePortRange (optional), NicType, Policy, DestCidrIp (optional), DestGroupOwnerAccount, and DestGroupId.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityGroupEgressRule	The operation that you want to perform. Set the value to ModifySecurityGroupEgressRule.
IpProtocol	String	Yes	tcp	The transport layer protocol. The values of this parameter are case-insensitive. Valid values: • icmp • icmpv6 • gre • tcp • udp • all: All protocols are supported.
PortRange	String	Yes	80/80	The range of destination ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to all, the port range is -1/-1, which indicates all ports.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the source security group. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
SecurityGroupId	String	Yes	sg-bp67acfmxazb4ph***	The ID of the source security group.
DestGroupId	String	No	sg-bp67acfmxazb4pi***	The ID of the destination security group.
DestGroupOwnerId	Long	No	155780923770	The name of the Apsara Stack tenant account that manages the destination security group.
DestGroupOwnerAccount	String	No	EcsforCloud@Alibaba.com	The ID of the Apsara Stack tenant account that manages the destination security group.
DestCidrIp	String	No	10.0.0.0/8	The range of destination IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.
Ipv6DestCidrIp	String	No	2001:db8:1233:1a00::***	The range of destination IPv6 addresses. IPv6 addresses and CIDR blocks are supported. This parameter is empty by default.
SourceCidrIp	String	No	10.0.0.0/8	The range of source IPv4 addresses. IPv4 addresses and CIDR blocks are supported. This parameter is empty by default.
Ipv6SourceCidrIp	String	No	2001:db8:1234:1a00::***	The range of source IPv6 addresses. IPv6 addresses and CIDR blocks are supported. This parameter is empty by default.

Parameter	Type	Required	Example	Description
SourcePortRange	String	No	80/80	The range of source ports relevant to the transport layer protocol. Valid values: • When the IpProtocol parameter is set to tcp or udp, the valid port numbers are 1 to 65535. Specify a port range in the format of <start port number>/<end port number>. Correct example: 1/200. Incorrect example: 200/1. • When the IpProtocol parameter is set to icmp, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to gre, the port range is -1/-1, which indicates all ports. • When the IpProtocol parameter is set to all, the port range is -1/-1, which indicates all ports.
Policy	String	No	accept	The access control policy. Valid values: • accept: grants access. • drop: denies access without returning a rejection response. Default value: accept.
Priority	String	No	1	The priority of the security group rule. Valid values: 1 to 100. Default value: 1.

NicType	String	No	internet	The NIC type of the security group rule when the security group is in the classic network. Valid values:
				• internet: public NIC
				• intranet: internal NIC
				  ◦ If the security group is in a VPC, the parameter is set to intranet by default and cannot be modified.
				  ◦ If `DestGroupId` is specified but `DestCidrIp` is not, the NicType parameter can be set only to intranet.
				Default value: internet.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request You can use the client to generate the value, but you must make sure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.
Description	String	No	Thisisanewsecuritygrouprule	The new description of the security group rule. The description must be 1 to 512 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifySecurityGroupEgressRule
&SecurityGroupId=sg-bp67acfmxazb4ph***
&DestGroupId=sg-bp67acfmxazb4pi***
&SourceGroupOwnerAccount=EcsforCloud@Alibaba.com
&IpProtocol=tcp
&PortRange=80/80
&Policy=allow
&Description=Thisisanewsecuritygrouprule.
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityGroupEgressRuleResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</ModifySecurityGroupEgressRuleResponse>
```

`JSON` format

```
{
    "RequestId":"CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	The specified SecurityGroupId does not exist.	The error message returned because the specified security group does not exist in this account. Check whether the security group ID is correct.
404	InvalidDestGroupId.NotFound	The DestGroupId provided does not exist in our records.	The error message returned because the specified DestGroupId parameter does not exist.
400	OperationDenied	The specified IpProtocol does not exist or IpProtocol and PortRange do not match.	The error message returned because the specified IpProtocol parameter does not exist or does not match the specified port range.
400	InvalidIpProtocol.Malformed	The specified parameter "PortRange" is not valid.	The error message returned because the specified IpProtocol or PortRange parameter is invalid.
403	InvalidDestGroupId.Mismatch	NicType is required or NicType expects intranet.	The error message returned because the NicType parameter is not specified or is not set to intranet.
400	InvalidDestCidrIp.Malformed	The specified parameter "DestCidrIp" is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.
403	MissingParameter	The input parameter "DestGroupId" or "DestCidrIp" cannot be both blank.	The error message returned because both the DestGroupId and DestCidrIp parameters are empty.
400	InvalidPolicy.Malformed	The specified parameter "Policy" is not valid.	The error message returned because the specified Policy parameter is invalid.
400	InvalidNicType.ValueNotSupported	The specified NicType does not exist.	The error message returned because the specified NicType parameter does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidNicType.Mismatch	Specified nic type conflicts with the authorization record.	The error message returned because the specified NIC type conflicts with the authorization record.
403	AuthorizationLimitExceed	The limit of authorization records in the security group reaches.	The error message returned because the maximum number of rules in the security group has been reached.
403	InvalidParamter.Conflict	The specified SecurityGroupId should be different from the SourceGroupId.	The error message returned because the destination security group is the same as the source security group.
400	InvalidDestGroupId.Mismatch	Specified security group and destination group are not in the same VPC.	The error message returned because the specified source and destination security groups do not belong to the same VPC.
400	InvalidDestGroup.NotFound	Specified destination security group does not exist.	The error message returned because the specified DestGroupId parameter does not exist.
400	VPCDisabled	Can't use the SecurityGroup in VPC.	The error message returned because the VPC does not support security groups.
400	InvalidPriority.Malformed	The specified parameter "Priority" is not valid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidPriority.ValueNotSupported	The specified Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidDestCidrIp.Malformed	The specified parameter DestCidrIp is not valid.	The error message returned because the specified DestCidrIp parameter is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HTTP status code	Error code	Error message	Description
403	InvalidNetworkType.Conflict	The specified SecurityGroup network type should be same with SourceGroup network type (vpc or classic).	The error message returned because the network type of the destination security group is different from that of the source security group.
403	InvalidSecurityGroup.IsSame	The authorized SecurityGroupId should be different from the DestGroupId.	The error message returned because the ID of the destination security group is the same as that of the source security group.
400	InvalidNicType.ValueNotSupported	The specified NicType is not valid.	The error message returned because the specified NicType parameter does not exist.
400	InvalidSecurityGroupDiscription.Malformed	The specified security group rule description is not valid.	The error message returned because the specified Description parameter is invalid.
404	SecurityGroupRule.NotFound	The target security group rule do not exist.	The error message returned because the specified security group rule does not exist.
400	InvalidSecurityGroup.InvalidNetworkType	The specified security group network type is not support this operation, please check the security group network types. For VPC security groups, ClassicLink must be enabled.	The error message returned because the operation is not supported while the security group is of the current network type. If the network type is VPC, ClassicLink must be enabled.
400	MissingParameter.Dest	The parameter DestCidrIp or DestGroupId is essential.	The error message returned because both the DestCidrIp and DestGroupId parameters are empty.
400	InvalidParam.PortRange	The specified param PortRange or SourcePortRange is not valid. should be integer and less than 65535, range separator is '/'.	The error message returned because the specified PortRange or SourcePortRange parameter is invalid. The values of PortRange and SourcePortRange must be in the format of <start port number>/<end port number>. The port numbers must be integers ranging from 1 to 65535.

HTTP status code	Error code	Error message	Description
400	InvalidIpProtocol.ValueNotSupported	The specified parameter IpProtocol should not be null and only tcp, udp, icmp, gre or all is supported. Ignore case.	The error message returned because the specified IpProtocol parameter is invalid. The valid values of this parameter are tcp, udp, icmp, gre, and all.
400	InvalidPriority.ValueNotSupported	The parameter Priority is invalid.	The error message returned because the specified Priority parameter is invalid.
400	InvalidParam.SourceIp	%s	The error message returned because the specified SourceCidrIp parameter is invalid.
400	InvalidParam.DestIp	%s	The error message returned because the specified DestCidrIp parameter is invalid.
400	InvalidParam.Ipv6DestCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv6SourceCidrIp	%s	The error message returned because the specified Ipv6SourceCidrIp parameter is invalid.
400	InvalidParam.Ipv4ProtocolConflictWithIpv6Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv6 address under an IPv4 protocol by mistake.
400	InvalidParam.Ipv6ProtocolConflictWithIpv4Address	%s	The error message returned because the specified parameter is invalid. Check whether you have entered an IPv4 address under an IPv6 protocol by mistake.
400	ILLEGAL_IPV6_CIDR	%s	The error message returned because the specified IPv6 address is invalid.
400	InvalidSourcePortRange.Malformed	The specified parameter "SourcePortRange" is not valid.	The error message returned because the specified SourcePortRange parameter is invalid.

2.1.2.1.12. SSH key pairs

2.1.2.1.12.1. CreateKeyPair

You can call this operation to create an SSH key pair. Apsara Stack stores the public key and returns the unencrypted private key. The private key is PEM-encoded in the PKCS#8 format. You must securely lock away the private key on your own.

Description

In addition to calling CreateKeyPair, you can create a key pair by using other key pair generation tools and call ImportKeyPair to upload the key pair to a region.

You have a maximum of 500 key pairs in each region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateKeyPair	The operation that you want to perform. Set the value to CreateKeyPair.
KeyPairName	String	Yes	TestKeyPairV23	The name of the key pair. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with http:// or https. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-).
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the key pair. You can call the DescribeRegions operation to query the most recent region list.
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the key pair. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the key pair. Valid values of N: 1 to 20. It can be up to 128 characters in length and cannot start with acs: or contain http:// or https://.

Parameter	Type	Required	Example	Description
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which to assign the key pair.

Response parameters

Parameter	Type	Example	Description
KeyPairFingerPrint	String	89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**	The fingerprint of the key pair. The fingerprint uses the message-digest algorithm 5 (MD5) based on the public key fingerprint format defined in RFC 4716. For more information, see RFC 4716.
KeyPairId	String	ssh-bp67acfmxazb4ph***	The ID of the key pair.
KeyPairName	String	TestKeyPairV23	The name of the key pair.
PrivateKeyBody	String	MIIEpAIBAAKCAQEAtReyMzLIcBH78EV2zj****	The private key of the key pair. The private key is PEM-encoded in the PKCS#8 format.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateKeyPair
&RegionId=cn-qingdao-env17-d01
&KeyPairName=TestKeyPairV23
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateKeyPairResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
      <KeyPairName>test</KeyPairName>
      <KeyPairId>ssh-bp67acfmxazb4ph***</KeyPairId>
      <KeyPairFingerPrint>89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**</KeyPairFingerPrint>
      <PrivateKeyBody>MIIEpAIBAAKCAQEAtReyMzLIcBH78EV2zj****</PrivateKeyBody>
</CreateKeyPairResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E",
    "KeyPairName": "TestKeyPairV23",
    "KeyPairId": "ssh-bp67acfmxazb4ph***",
    "KeyPairFingerPrint": "89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**",
    "PrivateKeyBody": "MIIEpAIBAAKCAQEAtReyMzLIcBH78EV2zj****"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidKeyPairName.Malformed	Specified Key Pair name is not valid.	The error message returned because the specified KeyPairName parameter is invalid.
403	QuotaExceed.KeyPair	The key pair quota exceeds.	The error message returned because the maximum number of key pairs has been reached.
400	KeyPair.AlreadyExist	The key pair already exist.	The error message returned because a key pair with the same name already exists. Key pair names must be unique.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.

2.1.2.1.12.2. ImportKeyPair

You can call this operation to import the public key of an RSA-encrypted key pair generated by a third-party tool. After the public key is imported, it is stored on Apsara Stack. You must securely lock away the private key on your own.

Description

When you call this operation, take note of the following items:

- You have a maximum of 500 key pairs per region.
- The key pair to be imported must support one of the following encryption methods:
  - rsa
  - dsa
  - ssh-rsa
  - ssh-dss
  - ecdsa
  - ssh-rsa-cert-v00@openssh.com
  - ssh-dss-cert-v00@openssh.com
  - ssh-rsa-cert-v01@openssh.com
  - ssh-dss-cert-v01@openssh.com
  - ecdsa-sha2-nistp256-cert-v01@openssh.com
  - ecdsa-sha2-nistp384-cert-v01@openssh.com
  - ecdsa-sha2-nistp521-cert-v01@openssh.com

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ImportKeyPair	The operation that you want to perform. Set the value to ImportKeyPair.
KeyPairName	String	Yes	KeyPairV24	The name of the key pair. The name must be globally unique. It must be 2 to 128 characters in length. It must start with a letter but cannot start with http:// or https://. The name can contain letters, digits, colons (:), underscores (_), and hyphens (-).
PublicKeyBody	String	Yes	xxxxxxxxxxxxxx	The public key of the key pair.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the key pair. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N to be bound to the key pair. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	TestValue	The value of tag N to be bound to the key pair. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which to assign the key pair.

Response parameters

Parameter	Type	Example	Description
KeyPairFingerPrint	String	89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**	The fingerprint of the key pair. The message-digest algorithm 5 (MD5) is used based on the public key fingerprint format defined in RFC 4716.
KeyPairName	String	KeyPairV24	The name of the key pair.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ImportKeyPair
&RegionId=cn-qingdao-env17-d01
&PublicKeyBody=xxxxxxxxxxxxxx
&KeyPairName=test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ImportKeyPairResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
      <KeyPairName>test</KeyPairName>
      <KeyPairFingerPrint>89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**</KeyP
airFingerPrint>
</ImportKeyPairResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E",
    "KeyPairName": "test",
    "KeyPairFingerPrint": "89:f0:ba:62:ac:b8:aa:e1:61:5e:fd:81:69:86:6d:6b:f0:c0:5a:**"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidKeyPairName.Malformed	Specified Key Pair name is not valid.	The error message returned because the specified KeyPairName parameter is invalid.
403	QuotaExceed.KeyPair	The key pair quota exceeds.	The error message returned because the maximum number of key pairs has been reached.
400	InvalidPublicKeyBody.Malformed	The PublicKeyBody format is not supported.	The error message returned because the public key format is not supported.
400	MissingParameter	The input parameter "PublicKeyBody" that is mandatory for processing this request is not supplied.	The error message returned because the required PublicKeyBody parameter is not specified.
400	KeyPair.AlreadyExist	The key pair already exist.	The error message returned because a key pair with the same name already exists. Key pair names must be unique.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

HTTP status code	Error code	Error message	Description
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.

2.1.2.1.12.3. AttachKeyPair

You can call this operation to attach an SSH key pair to one or more Linux instances.

Description

When you call this operation, take note of the following items:

- SSH key pairs are not supported on Windows instances.
- If an SSH key pair is attached to an instance, the username and password authentication method is disabled for the instance.
- After you attach an SSH key pair to an instance in the **Running** (Running) state, you must call the RebootInstance operation to restart the instance for the key pair to take effect.
- After you attach an SSH key pair to an instance in the **Stopped** (Stopped) state, you must call the StartInstance operation to start the instance for the key pair to take effect.
- If an instance already has an SSH key pair attached, the new SSH key pair automatically replaces the original one.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AttachKeyPair	The operation that you want to perform. Set the value to AttachKeyPair.
InstanceIds	String	Yes	["i-xxxxxxxxx", "i-yyyyyyyyy", ... "i-zzzzzzzzz"]	The IDs of instances to which you want to attach the SSH key pair. The value can be a JSON array that consists of up to 50 instance IDs. Separate multiple instance IDs with commas (,).
KeyPairName	String	Yes	KeyPairV25	The name of the SSH key pair.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the SSH key pair. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
FailCount	String	0	The number of instances to which the SSH key pair failed to be attached.
KeyPairName	String	KeyPairV25	The name of the SSH key pair.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
Results	Array		The result set of the attach operation.
Result			
Code	String	200	The operation status code returned. 200 indicates that the operation is successful.
InstanceId	String	i-instanc****	The ID of the instance.
Message	String	successful	The operation information returned. When the value of Code is 200, the value of Message is successful.
Success	String	true	Indicates whether the operation was successful.
TotalCount	String	2	The total number of instances to which the SSH key pair was attached.

Examples

Sample requests

```
https://ecs.example.com/?Action=AttachKeyPair
&InstanceIds=["i-xxxxx****", "i-yyyyy****", … "i-zzzzz****"]
&KeyPairName=KeyPairV25
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AttachKeyPairResponse>
      <TotalCount>2</TotalCount>
      <RequestId>4ADF7A06-66BD-4FBF-A2ED-2364E41D8C06</RequestId>
      <Results>
            <Result>
                  <Message>successful</Message>
                  <InstanceId>i-m5eg7be9ndloji64j***</InstanceId>
                  <Success>true</Success>
                  <Code>200</Code>
            </Result>
            <Result>
                  <Message>successful</Message>
                  <InstanceId>i-m5e25x2mwr0hk33dw***</InstanceId>
                  <Success>true</Success>
                  <Code>200</Code>
            </Result>
      </Results>
      <FailCount>0</FailCount>
</AttachKeyPairResponse>
```

`JSON` format

```
{
    "TotalCount": 2,
    "RequestId": "4ADF7A06-66BD-4FBF-A2ED-2364E41D8C06",
    "Results": {
        "Result": [
            {
                "Message": "successful",
                "InstanceId": "i-m5eg7be9ndloji64j***",
                "Success": true,
                "Code": "200"
            },
            {
                "Message": "successful",
                "InstanceId": "i-m5e25x2mwr0hk33dw***",
                "Success": true,
                "Code": "200"
            }
        ]
    },
    "FailCount": 0
}
```

Error codes

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	InvalidKeyPairName.NotFound	The specified KeyPairName does not exist in our records.	The error message returned because the specified KeyPairName parameter does not exist.
403	DependencyViolation.WindowsInstance	The instance creating is windows, cannot use ssh key pair to login	The error message returned because the specified instance is a Windows instance and does not support logons with SSH key pairs.
403	InstanceKeyPairLimitExceeded	Exceeding the allowed amount of instance that an key pair can attach.	The error message returned because the number of instances exceeds the maximum number allowed in a single request.
400	InvalidInstanceIds.ValueNotSupported	The specified parameter InstanceIds is not valid.	The error message returned because the specified InstanceIds parameter is invalid.
400	DependencyViolation.IoOptimize	The specified parameter InstanceIds is not valid.	The error message returned because the specified InstanceIds parameter is invalid.

2.1.2.1.12.4. DetachKeyPair

You can call this operation to detach an SSH key pair from one or more Linux instances.

Description

When you call this operation, take note of the following items:

- After you detach an SSH key pair from an instance, you must call the RebootInstance operation to restart the instance for the detach operation to take effect.
- By default, the username and password authentication method is used for an instance after you detach an SSH key pair from the instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DetachKeyPair	The operation that you want to perform. Set the value to DetachKeyPair.

Parameter	Type	Required	Example	Description
InstanceIds	String	Yes	["i-xxxxx****", "i-yyyyy****", ... "i-zzzzz****"]	The IDs of instances from which you want to detach the SSH key pair. The value can be a JSON array that consists of up to 50 instance IDs. Separate multiple instance IDs with commas (,).
KeyPairName	String	Yes	KeyPairV26	The name of the SSH key pair.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the SSH key pair. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
FailCount	String	0	The number of instances from which the SSH key pair failed to be detached.
KeyPairName	String	KeyPairV26	The name of the SSH key pair.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
Results	Array		The result set of the detach operation.
Result			
Code	String	200	The operation status code returned. 200 indicates that the operation is successful.
InstanceId	String	i-instanc****	The ID of the instance.
Message	String	successful	The operation information returned. When the value of Code is 200, the value of Message is successful.
Success	String	true	Indicates whether the operation was successful.

Parameter	Type	Example	Description
TotalCount	String	2	The total number of instances from which the SSH key pair was detached.

Examples

Sample requests

```
https://ecs.example.com/?Action=DetachKeyPair
&RegionId=cn-qingdao-env17-d01
&InstanceIds=["i-xxx****", "i-yyy****"]
&KeyPairName=test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachKeyPairResponse>
      <TotalCount>2</TotalCount>
      <RequestId>834B3E6B-2D1D-482F-81A4-810C327D4735</RequestId>
      <Results>
            <Result>
                  <Message>successful</Message>
                  <InstanceId>i-m5eg7be9ndloji64j***</InstanceId>
                  <Success>true</Success>
                  <Code>200</Code>
            </Result>
            <Result>
                  <Message>successful</Message>
                  <InstanceId>i-m5e25x2mwr0hk33dw***</InstanceId>
                  <Success>true</Success>
                  <Code>200</Code>
            </Result>
      </Results>
      <FailCount>0</FailCount>
</DetachKeyPairResponse>
```

`JSON` format

```
{
    "TotalCount": 2,
    "RequestId": "834B3E6B-2D1D-482F-81A4-810C327D4735",
    "Results": {
        "Result": [
            {
                "Message": "successful",
                "InstanceId": "i-m5eg7be9ndloji64j***",
                "Success": true,
                "Code": "200"
            },
            {
                "Message": "successful",
                "InstanceId": "i-m5e25x2mwr0hk33dw***",
                "Success": true,
                "Code": "200"
            }
        ]
    },
    "FailCount": 0
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidKeyPairName.NotFound	The specified KeyPairName does not exist in our records.	The error message returned because the specified KeyPairName parameter does not exist.
403	DependencyViolation.WindowsInstance	The instance creating is windows, cannot use ssh key pair to login	The error message returned because the specified instance is a Windows instance and does not support logons with SSH key pairs.
403	InstanceKeyPairLimitExceeded	Exceeding the allowed amount of instance that an key pair can attach.	The error message returned because the number of instances exceeds the maximum number allowed in a single request.
400	InvalidInstanceIds.ValueNotSupported	The specified parameter InstanceIds is not valid.	The error message returned because the specified InstanceIds parameter is invalid.

2.1.2.1.12.5. DeleteKeyPairs

You can call this operation to delete one or more SSH key pairs.

Description

After an SSH key pair is deleted:

- You cannot query the key pair by calling the DescribeKeyPairs operation.
- If the key pair was bound to one or more ECS instances:
  - The key pair is no longer stored on Apsara Stack but the instances can still use the key pair.
  - When you call the DescribeInstance operation to query instance information, the name of the key pair name (KeyPairNames) is still returned, but no other information about the key pair.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteKeyPairs	The operation that you want to perform. Set the value to DeleteKeyPairs.
KeyPairNames	String	Yes	["skp-bp67acfmxazb4ph***", "skp-bp67acfmxazb4pi***", ... "skp-bp67acfmxazb4pk***"]	The names of SSH key pairs. The value can be a JSON array that consists of up to 100 key pair names. Separate multiple key pair names with commas (,).
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the key pair. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteKeyPairs
&RegionId=cn-qingdao-env17-d01
&KeyPairNames=["skp-bp67acfmxazb4ph***", "skp-bp67acfmxazb4pi***", ... "skp-bp67acfmxazb4pk***"]
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteKeyPairsResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</DeleteKeyPairsResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	The input parameter "KeyPairNames" that is mandatory for processing this request is not supplied.	The error message returned because the required KeyPairNames parameter is not specified.
400	InvalidKeyPairNames.ValueNotSupported	The specified parameter "KeyPairNames" is not valid.	The error message returned because the specified KeyPairNames parameter is invalid.
403	InstanceKeyPairLimitExceeded	Exceeding the allowed amount of instance which will be deleted.	The error message returned because the number of specified key pairs exceeds the upper limit.

2.1.2.1.12.6. DescribeKeyPairs

You can call this operation to query one or more key pairs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeKeyPairs	The operation that you want to perform. Set the value to DescribeKeyPairs.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the key pair. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
KeyPairName	String	No	*Finance*	The name of the key pair. You can use the asterisk (*) symbol as a wild card in regular expressions to query key pairs by performing a fuzzy search. Sample patterns: • `*SshKey` : queries key pairs whose names end with SshKey, including the key pair named SshKey. • `SshKey*` : queries key pairs whose names start with SshKey, including the key pair named SshKey. • `*SshKey*` : queries key pairs whose names include SshKey, including the key pair named SshKey. • `SshKey` : queries the key pair named SshKey.
KeyPairFingerPrint	String	No	XXXXXXXXXX	The fingerprint of the key pair. The message-digest algorithm 5 (MD5) is used based on the public key fingerprint format defined in RFC 4716. For more information, see RFC 4716.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 50 Default value: 10.
Tag.N.Key	String	No	FinanceDeptKey	The key of tag N of the key pair. Valid values of N: 1 to 20.
Tag.N.Value	String	No	FinanceDeptValue	The value of tag N of the key pair. Valid values of N: 1 to 20.
ResourceGroupId	String	No	rg-resourcegrou****	The ID of the resource group to which the key pair belongs.

Response parameters

Parameter	Type	Example	Description
KeyPairs	Array		The collection of details about key pairs.
KeyPair			
CreationTime	String	2019-12-04T13:35:00Z	The time when the key pair was created.
KeyPairFingerPrint	String	xxxxxxxxxx	The fingerprint of the key pair.
KeyPairName	String	KeyPairV27	The name of the key pair.
ResourceGroupId	String	rg-resourcegrou****	The ID of the resource group to which the key pair belongs.
Tags	Array		The tags of the key pair.
Tag			
TagKey	String	FinanceDeptKey	The tag key of the key pair.
TagValue	String	FinanceDeptValue	The tag value of the key pair.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	1	The total number of key pairs.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeKeyPairs
&RegionId=cn-qingdao-env17-d01
&KeyPairFingerPrint=xxxxxxxxxx
&KeyPairName=test
&PageNumber=1
&PageSize=20
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeKeyPairsResponse>
      <PageNumber>1</PageNumber>
      <PageSize>2</PageSize>
      <TotalCount>1</TotalCount>
      <KeyPairs>
            <KeyPair>
                  <CreationTime>2018-10-10T01:00Z</CreationTime>
                  <ResourceGroupId></ResourceGroupId>
                  <KeyPairName>test</KeyPairName>
                  <KeyPairFingerPrint>xxxxxxxxxx</KeyPairFingerPrint>
            </KeyPair>
      </KeyPairs>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</DescribeKeyPairsResponse>
```

`JSON` format

```
{
 "PageNumber": 1,
 "PageSize": 2,
 "TotalCount": 1,
 "KeyPairs": {
  "KeyPair": [{
   "CreationTime": "2018-10-10T01:00Z",
   "ResourceGroupId": "",
   "KeyPairName": "test",
   "KeyPairFingerPrint": "xxxxxxxxxx"
  }]
 },
 "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

2.1.2.1.13. Elastic network interfaces

2.1.2.1.13.1. CreateNetworkInterface

You can call this operation to create an elastic network interface (ENI).

Description

- The newly created ENI is in the Available state.
- An ENI can be bound to a single VPC-type instance in the same zone.
- An ENI can be bound to a single instance. You must unbound an ENI from the instance to which the ENI is bound before you can bind the ENI to another instance.
- After an ENI is bound to another instance, the attributes of the ENI remain unchanged and its data traffic is redirected to the new instance.
- By default, an Apsara Stack tenant account can create a maximum of 100 ENIs in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateNetworkInterface	The operation that you want to perform. Set the value to CreateNetworkInterface.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region in which to create the ENI. You can call the DescribeRegions operation to query the most recent region list.
VSwitchId	String	Yes	vsw-bp1s5fnvk4gn2tws03***	The ID of the VSwitch which to connect to the ENI in the specified VPC. The private IP addresses assigned to the ENI must be available IP addresses in the CIDR block of the VSwitch.
Tag.N.Key	String	No	test	The key of tag N to be bound to the ENI. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	api	The value of tag N to be bound to the ENI. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length and cannot start with acs: or contain http:// or https://.
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which to assign the ENI.

Parameter	Type	Required	Example	Description
PrimaryIpAddress	String	No	172.17.**. ***	The primary private IP address of the ENI. The specified IP address must be available within the CIDR block of the VSwitch. If this parameter is not specified, an available IP address is assigned from the VSwitch CIDR block at random.
SecurityGroupId	String	No	sg-bp1fg655nh68xyz9i***	The ID of the security group to which to assign the ENI. The security group and the ENI must belong to the same VPC.
SecurityGroupIds.N	RepeatList	No	sg-bp1fg655nh68xyz9i***	The ID of security group N to which to assign the ENI. The security group and the ENI must belong to the same VPC. The valid values of N depend on the maximum number of security groups to which an ENI can be added. **Note** You cannot specify `SecurityGroupId` and `SecurityGroupIds.N` at the same time.
NetworkInterfaceName	String	No	eni-eniname	The name of the ENI. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). The name must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
Description	String	No	test	The description of the ENI. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Parameter	Type	Required	Example	Description
PrivateIpAddress.N	RepeatList	No	172.***. ***.177	The secondary private IP address N of the ENI. This IP address must be an available IP address in the CIDR block of the VSwitch to be connected to the ENI. Valid values of N: `0 to 10`. **Note** To assign secondary private IP addresses to the ENI, you must specify one of the `PrivateIpAddress` and `SecondaryPrivateIpAddressCount` parameters but you cannot both of them.
SecondaryPrivateIpAddressCount	Integer	No	1	The number of private IP addresses to be created automatically by ECS.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The **ClientToken** value can only contain ASCII characters and cannot exceed 64 characters in length. For more information, see How to ensure idempotence in ECS Developer Guide.

Response parameters

Parameter	Type	Example	Description
NetworkInterfaceId	String	eni-bp14v2sdd3v8htlnm***	The ID of the ENI.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CreateNetworkInterface
&RegionId=cn-qingdao-env17-d01
&SecurityGroupIds.1=sg-bp1fg655nh68xyz9i***
&SecurityGroupIds.2=sg-bp67acfmxazb4ph***
&VSwitchId=vsw-bp1s5fnvk4gn2tws03***
&Tag.1.Key=test
&Tag.1.Value=api
&ResourceGroupId=rg-bp67acfmxazb4ph***
&PrimaryIpAddress=172.17. **. ***
&NetworkInterfaceName=eni-eniname1
&Description=test
&ClientToken=123e4567-e89b-12d3-a456-426655440000
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateNetworkInterfaceResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FExxxxx</RequestId>
      <NetworkInterfaceId>eni-bp14v2sdd3v8htlnm***</NetworkInterfaceId>
</CreateNetworkInterfaceResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FExxxxx",
    "NetworkInterfaceId": "eni-bp14v2sdd3v8htlnm***"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because your account is not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because the primary ENI cannot be unbound from the instance.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified SecurityGroupId parameter is invalid and the specified security group is not of the VPC type.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
403	InvalidVSwitchId.IpNotEnough	%s	The error message returned because available IP addresses in the CIDR block of the specified VSwitch are insufficient.
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified private IP address is invalid.

HTTP status code	Error code	Error message	Description
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
403	QuotaExceed.Tags	%s	The error message returned because the number of specified tags exceeds the upper limit.
403	InvalidIp.Address	%s	The error message returned because the specified IPv6 address is invalid.
403	InvalidIp.IpRepeated	%s	The error message returned because the specified IP address already exists.
400	InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	The error message returned because the specified private IP address is already in use. Try another IP address.
400	InvalidParameter.Conflict	%s	The error message returned because a specified parameter is invalid. Check whether parameter conflicts exist.

2.1.2.1.13.2. AttachNetworkInterface

You can call this operation to bind an elastic network interface (ENI) to an ECS instance in a VPC.

Description

When you call this operation, take note of the following items:

- The ENI must be in the **Available** (`Available`) state. Each ENI can be bound to a single instance.
- The instance must be in the **Running** (`Running`) or **Stopped** (`Stopped`). When you bind ENIs to instances of some instance types, the instances must be in the **Stopped** (`Stopped`) state.

  > **Note** If the last start time of the instance (including the last start time of the instance if it is newly purchased, the last restart time of the instance, the last reactivation time of the instance) is before April 1, 2018 and the instance stays in the Running state, you must call the RebootInstance operation to restart the instance. Otherwise, the ENI cannot be attached to the instance.

- You can bind multiple ENIs to a single instance.
- The instance must be in the same zone and the same VPC as the VSwitch to which the ENI is connected.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AttachNetworkInterface	The operation that you want to perform. Set the value to AttachNetworkInterface.
InstanceId	String	Yes	i-bp16qstyvxj9gpqw****	The ID of the instance.
NetworkInterfaceId	String	Yes	eni-bp17pdijfczax1huji****	The ID of the ENI.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AttachNetworkInterface
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-bp16qstyvxj9gpqw****
&NetworkInterfaceId=eni-bp17pdijfczax1huji****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AttachNetworkInterfaceResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</AttachNetworkInterfaceResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.

HTTP status code	Error code	Error message	Description
403	Forbidden.SubUser	%s	The error message returned because your account is not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidRegion	%s	The error message returned because the specified RegionId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because the primary ENI cannot be unbound from the instance.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.

HTTP status code	Error code	Error message	Description
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified SecurityGroupId parameter is invalid and the specified security group is not of the VPC type.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
403	InvalidInstanceId.NotFound	%s	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidOperation.InvalidGeneration	%s	The error message returned because the operation is invalid.
400	InvalidParams.EniId	%s	The error message returned because the specified ENI ID is invalid.

HTTP status code	Error code	Error message	Description
403	InvalidOperation.Ipv4CountExceeded	%s	The error message returned because the maximum number of IPv4 addresses has been reached.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.
403	InvalidOperation.Ipv6NotSupport	%s	The error message returned because IPv6 does not support this operation.

2.1.2.1.13.3. AssignPrivateIpAddresses

You can call this operation to assign one or more secondary private IP addresses to an elastic network interface (ENI). You can specify available private IP addresses within the CIDR block of the VSwitch to which the ENI is connected. Alternatively, you can specify a number of private IP addresses for ECS to assign them automatically.

Description

- The ENI to which you want to assign private IP addresses must be in the Available (Available) or Bound (InUse) state.
- When you perform operations on the primary ENI, the instance to which the ENI is bound must be in the Running or Stopped state.
- When an ENI is in the Available state, you can assign up to 10 secondary private IP addresses to it. When an ENI is bound to an instance, the number of private IP addresses that can be assigned to the ENI is subject to the instance type.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssignPrivateIpAddresses	The operation that you want to perform. Set the value to AssignPrivateIpAddresses.
NetworkInterfaceId	String	Yes	eni-bp67acfmxazb4p****	The ID of the ENI.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
PrivateIpAddress.N	RepeatList	No	10.1.2.1	Private IP address N to be assigned. Select one or more IP addresses from within the CIDR block of the VSwitch to which the ENI is connected. Valid values of N: • When the ENI is in the `Available` (Available) state, the valid values of N are 1 to 10. • When the ENI is in the `Bound` (InUse) state, the valid values of N are subject to the instance type. To assign secondary private IP addresses, you must specify one of the `PrivateIpAddress` and `SecondaryPrivateIpAddressCount` parameters but you cannot specify both of them.
SecondaryPrivateIpAddressCount	Integer	No	1	The number of private IP addresses to be automatically assigned from within the CIDR block of the VSwitch.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AssignPrivateIpAddresses
&NetworkInterfaceId=eni-bp67acfmxazb4p****
&RegionId=cn-qingdao-env17-d01
&PrivateIpAddress.1=10.1.2.1
&PrivateIpAddress.2=10.1.2.2
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssignPrivateIpAddressesResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE70008</RequestId>
</AssignPrivateIpAddressesResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE70008"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
403	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because your account is not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from the instance.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified NetworkInterfaceId parameter does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.

HTTP status code	Error code	Error message	Description
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances that can be added to the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified SecurityGroupId parameter is invalid and the specified security group is not of the VPC type.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
404	InvalidInstanceId.NotFound	%s	The error message returned because the specified instance does not exist.
403	InvalidVSwitchId.IpNotEnough	%s	The error message returned because available IP addresses within the CIDR block of the specified VSwitch are insufficient.
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified private IP address is invalid.
403	InvalidIp.IpAssigned	%s	The error message returned because the specified IP address is already in use.
403	Operation.Conflict	%s	The error message returned because this operation conflicts with another operation in progress. Try again later.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
400	InvalidAction	%s	The error message returned because the operation is invalid.
403	InvalidOperation.Ipv4CountExceeded	%s	The error message returned because the maximum number of IPv4 addresses has been reached.

HTTP status code	Error code	Error message	Description
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.
400	InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	The error message returned because the specified private IP address is already in use. Try another IP address.

2.1.2.1.13.4. UnassignPrivateIpAddresses

You can call this operation to unassign one or more secondary private IP addresses from an elastic network interface (ENI).

Description

- The ENI from which you want to unassign private IP addresses must be in the **Available** (Available) or **Bound** (InUse) state.
- When you perform operations on the primary ENI, the instance to which the ENI is bound must be in the **Running** (Running) or **Stopped** (Stopped) state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassignPrivateIpAddresses	The operation that you want to perform. Set the value to UnassignPrivateIpAddresses.
NetworkInterfaceId	String	Yes	eni-bp67acfmxazb4ph***	The ID of the ENI from which you want to unassign one or more secondary private IP addresses.
PrivateIpAddress.N	RepeatList	Yes	192.168.**.1	The secondary private IP addresses to be unassigned.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=UnassignPrivateIpAddresses
&NetworkInterfaceId=eni-bp67acfmxazb4ph***
&PrivateIpAddress.1=192.168. **.1
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassignPrivateIpAddressesResponse>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FE70008</RequestId>
</UnassignPrivateIpAddressesResponse>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE70008"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
403	MissingParameter	%s	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because your account is not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from the instance.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified NetworkInterfaceId parameter does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances that can be added to the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified SecurityGroupId parameter is invalid and the specified security group is not of the VPC type.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
404	InvalidInstanceId.NotFound	%s	The error message returned because the specified instance does not exist.
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified private IP address is invalid.

HTTP status code	Error code	Error message	Description
403	InvalidIp.IpUnassigned	%s	The error message returned because the specified IP address is not assigned.
403	Operation.Conflict	%s	The error message returned because this operation conflicts with another operation in progress. Try again later.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
400	InvalidAction	%s	The error message returned because the operation is invalid.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.

2.1.2.1.13.5. DescribeNetworkInterfaces

You can call this operation to query the list of elastic network interfaces (ENIs).

Description

`You can use one of the following methods to check` the responses returned by the DescribeNetworkInterfaces operation:

- Method 1: Use `NextToken` to configure the query token. Set the value of this parameter to the `NextToken` value returned in the last call to `DescribeNetworkInterfaces`. Then use `MaxResults` to set the maximum number of entries to return on each page.
- Method 2: Use `PageSize` to set the number of entries to return on each page and then use `PageNumber` to set the number of the page to return.

  You can use only one of the preceding methods. If a large number of entries are returned, we recommend that you use method 1. If `NextToken` is set, `PageSize` and `PageNumber` will not take effect and `TotalCount` in the response will be invalid.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeNetworkInterfaces	The operation that you want to perform. Set the value to DescribeNetworkInterfaces.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.
Tag.N.Key	String	No	TestKey	The key of tag N that is bound to the ENI. Valid values of N: 1 to 20.
Tag.N.Value	String	No	TestValue	The value of tag N that is bound to the ENI. Valid values of N: 1 to 20.
ResourceGroupId	String	No	rg-bp67acfmxazb4p****	The ID of the resource group to which the ENI belongs.
VSwitchId	String	No	vsw-bp16usj2p27htro3****	The ID of the VSwitch to which the ENI is connected.
VpcId	String	No	vpc-wz9wh0fywtu5szszb****	The ID of the VPC to which the ENI belongs.
PrimaryIpAddress	String	No	192.168.*. *	The primary private IP address of the ENI.
PrivateIpAddress.N	RepeatList	No	192.168.*. *	Secondary private IP address N of the ENI. Valid values of N: 1 to 100.
SecurityGroupId	String	No	sg-bp144yr32sx6ndw****	The ID of the security group to which the ENI belongs.
NetworkInterfaceName	String	No	my-eni-name	The name of the ENI.
Type	String	No	Secondary	The type of the ENI. Valid values: • Primary • Secondary This parameter is empty by default, which indicates that both primary and secondary ENIs are queried.
InstanceId	String	No	i-bp1e2l6djkndyuli*****	The ID of the instance to which an ENI is bound.

Parameter	Type	Required	Example	Description
NetworkInterfaceId.N	RepeatList	No	eni-bp125p95hhdhn3ot****	The ID of ENI N. Valid values of N: 1 to 100.
ServiceManaged	Boolean	No	true	Specifies whether the user is an Apsara Stack service or a distributor.
Status	String	No	InUse	The state of the ENI. Valid values: • Creating: The ENI is being created. • Available: The ENI is not bound to any instance. • Attaching: The ENI is being bound to an instance. • InUse: The ENI is bound to an instance. • Detaching: The ENI is being unbound from an instance. • Deleting: The ENI is being deleted. • CreateFailed: The ENI failed to be created. This parameter is empty by default, which indicates that ENIs in all states are queried.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	100	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10. For more information about how to check responses returned by this operation, see the preceding "Description" section.

Parameter	Type	Required	Example	Description
NextToken	String	No	AAAAAdDWBF2****	The query token. Set the value to the `NextToken` value returned in the last call to DescribeNetworkInterfaces. For more information about how to check responses returned by this operation, see the preceding "Description" section.
MaxResults	Integer	No	50	The maximum number of entries to return on each page. Valid values: 1 to 500 Default value: 10

Response parameters

Parameter	Type	Example	Description
NetworkInterfaceSets	Array		The collection of details about ENIs.
NetworkInterfaceSet			
AssociatedPublicIp	Struct		The public IP address associated with the secondary private IP address of the ENI.
AllocationId	String	eip-2ze88m67qx5z****	The ID of the elastic IP address (EIP).
PublicIpAddress	String	116.62.*. *	**Note** This parameter is not supported.
Attachment	Struct		The binding state of the ENI.
DeviceIndex	Integer	1	
InstanceId	String	null	
TrunkNetworkInterfaceId	String	null	
CreationTime	String	2017-11-24T06:14:22Z	The time when the ENI was created.

Parameter	Type	Example	Description
Description	String	DescriptionTest	The description of the ENI.
InstanceId	String	i-bp1e2l6djkndyuli****	The ID of the instance to which the ENI was bound. **Note** For the ENIs that are managed and controlled by other Apsara Stack services, no instance IDs are returned.
Ipv6Sets	Array		The IPv6 addresses assigned to the ENI.
Ipv6Set			
Ipv6Address	String	2408:4321:180:1701:94c7:bc38:3bfa:****	The IPv6 address assigned to the ENI.
MacAddress	String	00:16:3e:12:e7:**	The MAC address of the ENI.
NetworkInterfaceId	String	eni-bp125p95hhdhn3ot*****	The ID of the ENI.
NetworkInterfaceName	String	my-eni-name	The name of the ENI.
OwnerId	String	123456****	The ID of the account that owns the ENI.
PrivateIpAddress	String	172.17.*. *	The private IP address of the ENI.
PrivateIpSets	Array		The private IP addresses of the ENI.
PrivateIpSet			
AssociatedPublicIp	Struct		The public IP address associated with the ENI.
AllocationId	String	eip-2ze88m67qx5z****	The ID of the EIP.

Parameter	Type	Example	Description
PublicIpAddress	String	116.62.*. *	Note This parameter is not supported.
Primary	Boolean	true	Indicates whether the IP address is the primary private IP address.
PrivateIpAddress	String	172.17.*. *	The private IP address of the instance.
QueueNumber	Integer	2	The queue number of the ENI.
ResourceGroupId	String	rg-2ze88m67qx5z****	The ID of the resource group.
SecurityGroupIds	List	sg-bp18kz60mefsicfg****	The IDs of security groups.
ServiceID	Long	12345678910	The ID of the distributor to which the ENI belongs.
ServiceManaged	Boolean	true	Indicates whether the user is an Apsara Stack service or a distributor.
Status	String	Available	The state of the ENI.
Tags	Array		The tags of the ENI.
Tag			
TagKey	String	TestKey	The key of the tag.
TagValue	String	TestValue	The value of the tag.
Type	String	Secondary	The type of the ENI.
VSwitchId	String	vsw-bp16usj2p27htro3****	The ID of the VSwitch.

Parameter	Type	Example	Description
VpcId	String	vpc-bp1j7w3gc1cexjqd****	The ID of the VPC.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone.
NextToken	String	AAAAAdDWBF2****	The query token returned in this call.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	70	The total number of ENIs.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeNetworkInterfaces
&RegionId=cn-qingdao-env17-d01
&PrivateIpAddress.1=192.168. *. *
&PrivateIpAddress.2=192.168. *. *
&NextToken=AAAAAdDWBF2****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeNetworkInterfacesResponse>
      <TotalCount>1</TotalCount>
      <RequestId>5C0E2B68-EDB0-421D-B146-E58A04808242</RequestId>
      <PageSize>10</PageSize>
      <NextToken>AAAAAdDWBF2w6Olxc+cMPjUtUMpaCa3hjTbxWpikFyOaihc****/JSvFWO/sGLK3bh****</Ne
xtToken>
      <PageNumber>1</PageNumber>
      <NetworkInterfaceSets>
            <NetworkInterfaceSet>
                  <Status>InUse</Status>
                  <PrivateIpAddress>192.168. *. *</PrivateIpAddress>
                  <ResourceGroupId>rg-aek2boynwys****</ResourceGroupId>
                  <InstanceId>i-wz91t9p4j9xsw2pn****</InstanceId>
                  <VSwitchId>vsw-wz9vqfgwgkj94ubb1****</VSwitchId>
                  <NetworkInterfaceId>eni-wz9iib303as7e5c3****</NetworkInterfaceId>
                  <MacAddress>00:16:3e:*:*:c2</MacAddress>
                  <SecurityGroupIds>
                        <SecurityGroupId>sg-wz9iib303as7e5c7****</SecurityGroupId>
                  </SecurityGroupIds>
                  <Type>Primary</Type>
                  <Ipv6Sets>
                        <Ipv6Set>
                              <Ipv6Address>2408:4321:180:1701:94c7:bc38:3bfa:***</Ipv6Addre
ss>
                        </Ipv6Set>
                  </Ipv6Sets>
                  <VpcId>vpc-wz9wh0fywtu5szszb****</VpcId>
                  <OwnerId>140692647406****</OwnerId>
                  <AssociatedPublicIp></AssociatedPublicIp>
                  <CreationTime>2019-12-25T12:31:31Z</CreationTime>
                  <Tags>
                        <Tag>
                              <TagKey>owner</TagKey>
                              <TagValue>lisi</TagValue>
                        </Tag>
                  </Tags>
                  <PrivateIpSets>
                        <PrivateIpSet>
                              <PrivateIpAddress>192.168. *. *</PrivateIpAddress>
                              <AssociatedPublicIp></AssociatedPublicIp>
                              <Primary>true</Primary>
                        </PrivateIpSet>
                  </PrivateIpSets>
            </NetworkInterfaceSet>
      </NetworkInterfaceSets>
</DescribeNetworkInterfacesResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "RequestId": "5C0E2B68-EDB0-421D-B146-E58A04808242",
    "PageSize": 10,
    "NextToken": "AAAAAdDWBF2w6Olxc+cMPjUtUMpaCa3hjTbxWpikFyOaihc****/JSvFWO/sGLK3bh****",
    "PageNumber": 1,
    "NetworkInterfaceSets": {
        "NetworkInterfaceSet": [{
            "Status": "InUse",
            "PrivateIpAddress": "192.168. *. *",
            "ResourceGroupId": "rg-aek2boynwys****",
            "InstanceId": "i-wz91t9p4j9xsw2pn****",
            "VSwitchId": "vsw-wz9vqfgwgkj94ubb1****",
            "NetworkInterfaceId": "eni-wz9iib303as7e5c3****",
            "MacAddress": "00:16:3e:*:*:c2",
            "SecurityGroupIds": {
                "SecurityGroupId": [
                    "sg-wz9iib303as7e5c7****"
                ]
            },
            "Type": "Primary",
            "Ipv6Sets": {
                "Ipv6Set": [{
                    "Ipv6Address": "2408:4321:180:1701:94c7:bc38:3bfa:***"
                }]
            },
            "VpcId": "vpc-wz9wh0fywtu5szszb****",
            "OwnerId": "140692647406****",
            "AssociatedPublicIp": {},
            "CreationTime": "2019-12-25T12:31:31Z",
            "Tags": {
                "Tag": [{
                    "TagKey": "owner",
                    "TagValue": "lisi"
                }]
            },
            "PrivateIpSets": {
                "PrivateIpSet": [{
                    "PrivateIpAddress": "192.168. *. *",
                    "AssociatedPublicIp": {},
                    "Primary": true
                }]
            }
        }]
    }
}
```


Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because your account is not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from the instance.

HTTP status code	Error code	Error message	Description
404	InvalidEcsId.NotFound	%s	The error message returned because the specified InstanceId parameter does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified NetworkInterfaceId.N parameter does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitchId parameter does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified SecurityGroupId parameter does not exist.
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances that can be added to the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified SecurityGroupId parameter is invalid and the specified security group is not of the VPC type.

HTTP status code	Error code	Error message	Description
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.

2.1.2.1.13.6. DetachNetworkInterface

You can call this operation to unbind an elastic network interface (ENI) from an ECS instance.

Description

When you call this operation, take note of the following items:

- The primary ENIs of ECS instances cannot be unbound.
- The ENI must be in the Detaching (Detaching) or Bound (InUse) state.
- The instance must be in the Running (Running) or Stopped (Stopped) state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DetachNetworkInterface	The operation that you want to perform. Set the value to DetachNetworkInterface.
InstanceId	String	Yes	i-bp67acfmxazb4p****	The ID of the instance from which you want to unbind an ENI.
NetworkInterfaceId	String	Yes	eni-bp67acfmxazb4p****	The ID of the ENI to be unbound.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DetachNetworkInterface
&InstanceId=i-bp67acfmxazb4p****
&NetworkInterfaceId=eni-bp67acfmxazb4p****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachNetworkInterfaceResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</DetachNetworkInterfaceResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because you are not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidRegion	%s	The error message returned because the specified RegionId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from their instances.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified security group ID is invalid and the network type of the security group is not VPC.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support the operation.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.

HTTP status code	Error code	Error message	Description
400	InvalidParams.EniId	%s	The error message returned because the specified ENI ID is invalid.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.
403	InvalidOperation.EniLinked	%s	The error message returned because the operation is not supported while ENIs are bound to the instance.
403	InvalidInstanceId.NotFound	%s	The error message returned because the specified InstanceId parameter does not exist.

2.1.2.1.13.7. DeleteNetworkInterface

You can call this operation to delete an elastic network interface (ENI).

Description

- The ENI must be in the Available (Available) state.
- If the ENI is bound to an ECS instance, you must unbind the ENI from the ECS instance (DetachNetworkInterface) before you can delete the ENI.
- After an ENI is deleted:
  - The primary private IP address of the ENI is automatically released.
  - The ENI is automatically removed from its security groups.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteNetworkInterface	The operation that you want to perform. Set the value to DeleteNetworkInterface.
NetworkInterfaceId	String	Yes	eni-bp14v2sdd3v8htlnm***	The ID of the ENI to be deleted.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F3CD6886-D8D0-4FEE-B93E-1B73239673DE	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DeleteNetworkInterface
&NetworkInterfaceId=eni-bp14v2sdd3v8htlnm***
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachNetworkInterface>
      <RequestId>04F0F334-1335-436C-A1D7-6C044FExxxxx</RequestId>
</DetachNetworkInterface>
```

`JSON` format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FExxxxx"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.

HTTP status code	Error code	Error message	Description
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbidden.SubUser	%s	The error message returned because you are not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified instance ID is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from their instances.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.

HTTP status code	Error code	Error message	Description
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified security group ID is invalid and the network type of the security group is not VPC.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support the operation.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
400	InvalidParams.EniId	%s	The error message returned because the specified ENI ID is invalid.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.

2.1.2.1.13.8. ModifyNetworkInterfaceAttribute

You can call this operation to modify the attributes of an elastic network interface (ENI), such as name, description, and security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNetworkInterfaceAttribute	The operation that you want to perform. Set the value to ModifyNetworkInterfaceAttribute.
NetworkInterfaceId	String	Yes	eni-bp67acfmxazb4ph***	The ID of the ENI to be modified.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.
SecurityGroupId.N	RepeatList	No	sg-bp67acfmxazb4ph***	The IDs of security groups to which to add the ENI. The ENI is removed from its current security groups and added to the specified security groups. Valid values of N: 1, 2, 3, 4, and 5.
NetworkInterfaceName	String	No	my-eni-name	The name of the ENI. The name must be 2 to 128 characters in length and can contain letters, digits, colons (:), underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://. This parameter is empty by default.
Description	String	No	test	The description of the ENI. The description must be 2 to 256 characters in length and cannot start with http:// or https://. This parameter is empty by default.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=ModifyNetworkInterfaceAttribute
&NetworkInterfaceId=eni-bp67acfmxazb4ph***
&RegionId=cn-qingdao-env17-d01
&SecurityGroupId.1=sg-bp67acfmxazb4ph***
&NetworkInterfaceName=my-eni-name
&Description=test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DetachNetworkInterfaceResponse>
        <RequestId>04F0F334-1335-436C-A1D7-6C044FExxxxx</RequestId>
</DetachNetworkInterfaceResponse>
```

`JSON` format

```
{
    "RequestId":"04F0F334-1335-436C-A1D7-6C044FExxxxx"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbidden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.

HTTP status code	Error code	Error message	Description
403	Forbidden.SubUser	%s	The error message returned because you are not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified instance ID is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
400	InvalidOperation.DetachPrimaryEniNotAllowed	%s	The error message returned because primary ENIs cannot be unbound from their instances.
400	InvalidParams.EniId	%s	The error message returned because the specified ENI ID is invalid.
404	InvalidEcsId.NotFound	%s	The error message returned because the specified instance ID does not exist.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.
404	InvalidVSwitchId.NotFound	%s	The error message returned because the specified VSwitch ID does not exist.
404	InvalidSecurityGroupId.NotFound	%s	The error message returned because the specified security group ID does not exist.

HTTP status code	Error code	Error message	Description
403	MaxEniCountExceeded	%s	The error message returned because the maximum number of ENIs that can be managed has been reached.
403	EniPerInstanceLimitExceeded	%s	The error message returned because the maximum number of ENIs that can be bound to the specified instance has been reached.
403	InvalidOperation.AvailabilityZoneMismatch	%s	The error message returned because the operation is invalid.
403	InvalidOperation.VpcMismatch	%s	The error message returned because the operation is invalid. Check whether the VPC in the operation corresponds to other parameters.
403	SecurityGroupInstanceLimitExceed	%s	The error message returned because the maximum number of instances in the specified security group has been reached.
403	InvalidSecurityGroupId.NotVpc	%s	The error message returned because the specified security group ID is invalid and the network type of the security group is not VPC.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support the operation.
400	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.

2.1.2.1.13.9. AssignIpv6Addresses

You can call this operation to assign one or multiple IPv6 addresses to an elastic network interface (ENI).

Description

You can assign available IPv6 addresses from within the CIDR block of the VSwitch with which the ENI is associated. Alternatively, you can specify the number of IPv6 addresses for ECS to automatically assign.

- The ENI must be in the **Available** (`Available`) or **Bound** (`InUse`) state.
- The ECS instance to which the primary ENI is bound must be in the **Running** (`Running`) or **Stopped** (`Stopped`) status.
- The maximum number of IPv6 addresses that can be assigned to an ENI depends on the instance type of the instance to which the ENI is bound.
  - If the ENI is in the **Available** (`Available`) state, it can be assigned a maximum of 10 IPv6 addresses.
  - If the ENI is already bound to an ECS instance, the maximum number of IPv6 addresses that can be assigned to the ENI depends on the instance type.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssignIpv6Addresses	The operation that you want to perform. Set the value to AssignIpv6Addresses.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI to which you want to assign IPv6 addresses. You can call the DescribeRegions operation to query the most recent region list.
NetworkInterfaceId	String	Yes	eni-bp14v2sdd3v8ht******	The ID of the ENI.
Ipv6Address.N	RepeatList	No	2001:db8:1234:1a00::***	The list of IPv6 addresses to be assigned to the ENI. Valid value of N: 1. Example: Ipv6Address.1=2001:db8:1234:1a00::XXX **Note** You cannot specify both Ipv6Addresses.N and Ipv6AddressCount.
Ipv6AddressCount	Integer	No	1	The number of IPv6 addresses to be randomly generated for the ENI. **Note** You cannot specify both Ipv6Addresses.N and Ipv6AddressCount.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AssignIpv6Addresses
&NetworkInterfaceId=eni-bp14v2sdd3v8ht******
&RegionId=cn-qingdao-env17-d01
&Ipv6Address.1=2001:db8:1234:1a00::***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssignIpv6AddressesResponse>
      <RequestId>A94E0C9F-B39E-4A87-BFFC-6DC7840xxxxx</RequestId>
</AssignIpv6AddressesResponse>
```

`JSON` format

```
{
    "RequestId": "A94E0C9F-B39E-4A87-BFFC-6DC7840xxxxx"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
403	MissingParameter	%s	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	Forbedden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.
403	Forbbiden.SubUser	%s	The error message returned because you are not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified instance ID is invalid.
400	InvalidParams.EniId	%s	The error message returned because the specified ENI ID is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
404	InvalidEniId.NotFound	%s	The error message returned because the specified ENI ID does not exist.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support the operation.
403	MaxEniIpv6IpsCountExceeded	%s	The error message returned because the maximum number of IPv6 addresses that can be assigned to the ENI has been reached.

HTTP status code	Error code	Error message	Description
403	InvalidIp.IpUnassigned	%s	The error message returned because the specified IP address is not assigned.
403	InvalidIp.IpRepeated	%s	The error message returned because the specified IP addresses are not unique.
403	InvalidIp.IpAssigned	%s	The error message returned because the specified IP address is already assigned.
403	InvalidIp.Address	%s	The error message returned because the specified range of IPv6 addresses is invalid.
403	InvalidOperation.Ipv4CountExceeded	%s	The error message returned because the maximum number of IPv4 addresses has been reached.
403	InvalidOperation.Ipv6CountExceeded	%s	The error message returned because the maximum number of IPv6 addresses has been reached.
403	InvalidOperation.Ipv6NotSupport	%s	The error message returned because IPv6 does not support this operation.
403	InvalidVSwitch.Ipv6NotTurnOn	%s	The error message returned because IPv6 is not enabled on your VSwitch. Enable this feature and try again.
403	InvalidVSwitchId.IpInvalid	%s	The error message returned because the specified private IP address is invalid.
403	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.
400	InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	The error message returned because the specified private IP address is already in use. Try another IP address.

2.1.2.1.13.10. UnassignIpv6Addresses

You can call this operation to reclaim one or multiple IPv6 addresses assigned to an elastic network interface (ENI).

Description

When you call this operation, take note of the following items:

- The ENI must be in the **Available** (Available) or **Bound** (InUse) state.
- If the ENI is a primary ENI, the ECS instance to which the primary ENI is attached must be in the **Running** (Running) or **Stopped** (Stopped) state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassignIpv6Addresses	The operation that you want to perform. Set the value to UnassignIpv6Addresses.
Ipv6Address.N	RepeatList	Yes	2001:db8:1234:1a00::***	The IPv6 addresses assigned to the ENI. Set the value of N to 1. Example: Ipv6Address.1=2001:db8:1234:1a00::*.
NetworkInterfaceId	String	Yes	eni-bp14v2sdd3v8ht*****	The ID of the ENI.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the ENI. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=UnassignIpv6Addresses
&Ipv6Address.1=2001:db8:1234:1a00::***
&NetworkInterfaceId=eni-bp14v2sdd3v8ht******
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassignIpv6AddressesResponse>
      <RequestId>48285314-3192-47FE-B4C8-9D51E7Fxxxxx</RequestId>
</UnassignIpv6AddressesResponse>
```

`JSON` format

```
{
    "RequestId": "48285314-3192-47FE-B4C8-9D51E7Fxxxxx"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	InvalidUserType.NotSupported	%s	The error message returned because your account does not support this operation.
403	Abs.InvalidAccount.NotFound	%s	The error message returned because your Apsara Stack tenant account does not exist or your AccessKey pair has expired.
403	MissingParameter	%s	The error message returned because a required parameter is not specified.
403	Forbedden.NotSupportRAM	%s	The error message returned because RAM users are not authorized to perform this operation.
400	UnsupportedParameter	%s	The error message returned because a specified parameter is not supported.

HTTP status code	Error code	Error message	Description
403	Forbbiden.SubUser	%s	The error message returned because you are not authorized to manage this resource. Contact the owner of the Apsara Stack tenant account for authorization.
400	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
400	InvalidInstanceID.Malformed	%s	The error message returned because the specified InstanceId parameter is invalid.
400	InvalidOperation.InvalidEcsState	%s	The error message returned because the operation is not supported while the instance is in the current state.
400	InvalidOperation.InvalidEniState	%s	The error message returned because the operation is not supported while the ENI is in the current state.
404	InvalidEniId.NotFound	%s	The error message returned because the specified NetworkInterfaceId parameter does not exist.
403	InvalidOperation.InvalidEniType	%s	The error message returned because the current ENI type does not support this operation.
403	InvalidIp.IpUnassigned	%s	The error message returned because the specified IP address is not assigned.
403	InvalidIp.IpRepeated	%s	The error message returned because the specified IP addresses are not unique.
403	InvalidIp.Address	%s	The error message returned because a specified IPv6 address is invalid.
403	Forbidden.RegionId	%s	The error message returned because the service is not available in the current region.

HTTP status code	Error code	Error message	Description
403	InvalidOperation.EniServiceManaged	%s	The error message returned because the operation is invalid.

2.1.2.1.14. System events

2.1.2.1.14.1. DescribeInstanceHistoryEvents

You can call this operation to query the system events of an instance. By default, inactive historical system events are queried.

Description

- You can query system events of instances within the past seven days.
- You can specify the InstanceEventCycleStatus parameter to query the system events that are in the Scheduled or Executing status.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceHistoryEvents	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify this parameter. Set the value to DescribeInstanceHistoryEvents.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
InstanceId	String	No	i-uf678mass4zvr9n1****	The ID of the instance. If this parameter is not specified, system events of all instances in the specified region are queried.
EventId.N	RepeatList	No	e-uf64yvznlao4jl2c****	The IDs of one or more system events. Valid values of N: 1 to 100. Specify multiple values in the repeated list form.

Parameter	Type	Required	Example	Description
InstanceEventCycleStatus.N	RepeatList	No	Executed	The lifecycle status of one or multiple system events. Valid values of N: 1 to 6. Specify multiple values in the repeated list form. Valid values: • Scheduled • Avoided • Executing • Executed • Canceled • Failed • Inquiring
EventCycleStatus	String	No	Executed	The lifecycle status of the system event. This parameter takes effect only when the InstanceEventCycleStatus.N parameter is not specified. Valid values: • Scheduled • Avoided • Executing • Executed • Canceled • Failed • Inquiring

Parameter	Type	Required	Example	Description
InstanceEventType.N	RepeatList	No	SystemMaintenance.Reboot	The types of one or multiple system events. Valid values of N: 1 to 30. Specify multiple values in the repeated list form. Valid values: • SystemMaintenance.Reboot: The instance is restarted due to system maintenance. • SystemMaintenance.Redeploy: The instance is redeployed due to system maintenance. • SystemFailure.Reboot: The instance is restarted due to a system failure. • SystemFailure.Redeploy: The instance is redeployed due to a system failure. • SystemFailure.Delete: The instance is released due to an instance creation failure. • InstanceFailure.Reboot: The instance is restarted due to an instance failure.
EventType	String	No	SystemMaintenance.Reboot	The type of the system event. This parameter takes effect only when the InstanceEventType.N parameter is not specified. Valid values: • SystemMaintenance.Reboot: The instance is restarted due to system maintenance. • SystemMaintenance.Redeploy: The instance is redeployed due to system maintenance. • SystemFailure.Reboot: The instance is restarted due to a system failure. • SystemFailure.Redeploy: The instance is redeployed due to a system failure. • SystemFailure.Delete: The instance is released due to an instance creation failure. • InstanceFailure.Reboot: The instance is restarted due to an instance failure.

Parameter	Type	Required	Example	Description
NotBefore.Start	String	No	2017-11-30T06:32:31Z	The beginning of the time range in which to query system events that are scheduled to executed. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
NotBefore.End	String	No	2017-12-01T06:32:31Z	The end of the time range in which to query system events that are scheduled to executed. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
EventPublishTime.Start	String	No	2017-11-30T06:32:31Z	The beginning of the time range in which to query published system events. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
EventPublishTime.End	String	No	2017-12-01T06:32:31Z	The end of the time range in which to query published system events. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.

Response parameters

Parameter	Type	Example	Description
InstanceSystemEventSet	Array		The collection of details about system events for the instance.
InstanceSystemEventType			

Parameter	Type	Example	Description
EventCycleStatus	Struct		The lifecycle status of the system event.
Code	Integer	0	The status code of the system event.
Name	String	Executed	The status name of the system event.
EventFinishTime	String	2017-12-01T06:35:31Z	The time when the system event ended. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
EventId	String	e-uf64yvznlao4jl2c****	The ID of the system event.
EventPublishTime	String	2017-11-30T06:32:31Z	The time when the system event was published. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
EventType	Struct		The type of the system event.
Code	Integer	34	The code of the system event type.
Name	String	InstanceExpiration.Stop	The name of the system event type.
ExtendedAttribute	Struct		The extended attribute of the system event.
Device	String	/dev/vda	The device name of the local disk.
DiskId	String	d-bp198jigq7l1xliw****	The ID of the local disk.
InactiveDisks	Array		The information of inactive cloud or local disks that have been released but need to be removed.
InactiveDisk			

Parameter	Type	Example	Description
CreationTime	String	2018-11-30T06:32:31Z	The time when the cloud or local disk was created. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
DeviceCategory	String	cloud_efficiency	The category of the cloud or local disk. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • cloud_essd: enhanced SSD • local_ssd_pro: I/O-intensive local disk • local_hdd_pro: throughput-intensive local disk
DeviceSize	String	80	The size of the cloud or local disk. Unit: GiB.
DeviceType	String	data	The type of the cloud or local disk. Valid values: • system: system disk • data: data disk
ReleaseTime	String	2019-11-30T06:32:31Z	The time when the cloud disk or local disk was released. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
InstanceId	String	i-uf678mass4zvr9n1****	The ID of the instance.
NotBefore	String	2017-12-06T00:00:00Z	The scheduled execution time of the system event. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
Reason	String	System maintenance is scheduled due to ***.	The reason why the system event was scheduled.
PageNumber	Integer	1	The page number of the returned page.

Parameter	Type	Example	Description
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	2	The total number of instances.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceHistoryEvents
&RegionId=cn-qingdao-env17-d01
&InstanceId=i-uf678mass4zvr9n1****
&EventId.1=e-uf64yvznlao4jl2c****
&InstanceEventCycleStatus.1=Executed
&EventCycleStatus=Executed
&InstanceEventType.1=SystemMaintenance.Reboot
&NotBefore.Start=2017-11-30T06:32:31Z
&NotBefore.End=2017-12-01T06:32:31Z
&PageNumber=1
&PageSize=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceHistoryEventsResponse>
      <InstanceSystemEventSet>
            <InstanceSystemEventType>
                  <InstanceId>i-uf678mass4zvr9n1****</InstanceId>
                  <EventId>e-uf64yvznlao4jl2c****</EventId>
                  <EventType>
                        <Code>1</Code>
                        <Name>SystemMaintenance.Reboot</Name>
                  </EventType>
                  <EventCycleStatus>
                        <Code>0</Code>
                        <Name>Executed</Name>
                  </EventCycleStatus>
                  <EventPublishTime>2017-11-30T06:32:31Z</EventPublishTime>
                  <NotBefore>2017-12-01T06:32:31Z</NotBefore>
                  <EventFinishTime>2017-12-01T06:35:31Z</EventFinishTime>
            </InstanceSystemEventType>
            <InstanceSystemEventType>
                  <InstanceId>i-uf678mass4zvr9n1****</InstanceId>
                  <EventId>e-uf61cbvp0w8x2xfx****</EventId>
                  <EventType>
                        <Code>34</Code>
                        <Name>InstanceExpiration.Stop</Name>
                  </EventType>
                  <EventCycleStatus>
                        <Code>8</Code>
                        <Name>Avoided</Name>
                  </EventCycleStatus>
                  <EventPublishTime>2017-11-29T06:32:31Z</EventPublishTime>
                  <NotBefore>2017-12-06T00:00:00Z</NotBefore>
                  <EventFinishTime>2017-12-05T12:35:31Z</EventFinishTime>
            </InstanceSystemEventType>
      </InstanceSystemEventSet>
      <PageSize>10</PageSize>
      <PageNumber>1</PageNumber>
      <TotalCount>2</TotalCount>
      <RequestId>02EA76D3-5A2A-44EB-XXXX-8901881D8707</RequestId>
</DescribeInstanceHistoryEventsResponse>
```

`JSON` format

```
{
    "InstanceSystemEventSet": {
        "InstanceSystemEventType": [
            {
                "InstanceId": "i-uf678mass4zvr9n1****",
                "EventId": "e-uf64yvznlao4jl2c****",
                "EventType": {
                    "Code": 1,
                    "Name": "SystemMaintenance.Reboot"
                },
                "EventCycleStatus": {
                    "Code": 0,
                    "Name": "Executed"
                },
                "EventPublishTime": "2017-11-30T06:32:31Z",
                "NotBefore": "2017-12-01T06:32:31Z",
                "EventFinishTime": "2017-12-01T06:35:31Z"
            },
            {
                "InstanceId": "i-uf678mass4zvr9n1****",
                "EventId": "e-uf61cbvp0w8x2xfx****",
                "EventType": {
                    "Code": 34,
                    "Name": "InstanceExpiration.Stop"
                },
                "EventCycleStatus": {
                    "Code": 8,
                    "Name": "Avoided"
                },
                "EventPublishTime": "2017-11-29T06:32:31Z",
                "NotBefore": "2017-12-06T00:00:00Z",
                "EventFinishTime": "2017-12-05T12:35:31Z"
            }
        ]
    },
    "PageSize": 10,
    "PageNumber": 1,
    "TotalCount": 2,
    "RequestId": "02EA76D3-5A2A-44EB-XXXX-8901881D8707"
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	MissingParameter	%s	The error message returned because a required parameter is not specified.

HTTP status code	Error code	Error message	Description
403	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
403	EventIdLimitExceeded	%s	The error message returned because more than 100 system event IDs are specified.
403	InvalidParameter.TimeEndBeforeStart	%s	The error message returned because the specified parameter is invalid. Check whether the end time is earlier than the start time.
403	OperationDenied.NotInWhiteList	%s	The error message returned because you are not authorized to perform this operation.

2.1.2.1.15. Regions and zones

2.1.2.1.15.1. DescribeRegions

You can call this operation to query available regions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to DescribeRegions.
ResourceType	String	No	instance	The resource type. Valid values: • instance • disk Default value: instance

Parameter	Type	Required	Example	Description
AcceptLanguage	String	No	zh-CN	The natural language that is used to filter the response. For more information, see RFC 7231. Valid values: • zh-CN: Chinese • en-US: English • ja: Japanese Default value: zh-CN

Response parameters

Parameter	Type	Example	Description
Regions	Array		The collection of regions.
Region			
LocalName	String	China (Qingdao)	The name of the region.
RegionEndpoint	String	ecs.example.com	The endpoint of the region.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
Status	String	available	This parameter is not supported.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeRegions
&RegionId=cn-qingdao-env17-d01
&AcceptLanguage=en-US
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRegionsResponse>
      <RequestId>38EC7366-F5A9-46B1-BDB1-0FDC2E296397</RequestId>
      <Regions>
            <Region>
                  <RegionId>cn-qingdao-et2-bo1</RegionId>
                  <RegionEndpoint>ecs.example.com</RegionEndpoint>
                  <LocalName>China (Qingdao)</LocalName>
            </Region>
            <Region>
                  <RegionId>cn-qingdao-nebula</RegionId>
                  <RegionEndpoint>ecs.cn-qingdao-nebula.example.com</RegionEndpoint>
                  <LocalName>cn-qingdao-nebula</LocalName>
            </Region>
      </Regions>
</DescribeRegionsResponse>
```

`JSON` format

```
{
    "RequestId": "38EC7366-F5A9-46B1-BDB1-0FDC2E296397",
    "Regions": {
        "Region": [
            {
                "RegionId": "cn-qingdao-et2-b01",
                "RegionEndpoint": "ecs.example.com",
                "LocalName": "China (Qingdao)"
            },
            {
                "RegionId": "cn-qingdao-nebula",
                "RegionEndpoint": "ecs.cn-qingdao-nebula.example.com",
                "LocalName": "cn-qingdao-nebula"
            }
        ]
    }
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	Unauthorized.EmptyRegion	The specified account has no access authority to any region.	The error message returned because you have no access to regions. Apply for permissions and try again.
404	InvalidAcceptLanguage.NotFound	Only Chinese (zh-CN), English (en-US), and Japanese (ja) are allowed.	The error message returned because the specified AcceptLanguage parameter is invalid. Only Chinese, English, and Japanese are supported.

HTTP status code	Error code	Error message	Description
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.

2.1.2.1.15.2. DescribeZones

You can call this operation to query zones in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeZones	The operation that you want to perform. Set the value to DescribeZones.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
AcceptLanguage	String	No	zh-CN	The natural language that is used to filter responses. For more information, visit RFC 7231. Valid values: • zh-CN • en-US • ja Default value: zh-CN.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
Zones	Array of Zone		Details about the zones.
Zone			
AvailableDedicatedHostTypes	List	Compute optimized	The supported dedicated host types.

Parameter	Type	Example	Description
AvailableDiskCategories	List	cloud	The supported disk categories.
AvailableInstanceTypes	List	c5	The available instance types.
AvailableResourceCreation	List	DedicatedHost	The types of resources that can be created.
AvailableResources	Array of ResourcesInfo		Details about the resources that can be created.
ResourcesInfo			
DataDiskCategories	List	cloud_ssd	The categories of data disks. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • ephemeral_ssd: local SSD
InstanceGenerations	List	IV	The generation numbers of instance families.
InstanceTypeFamilies	List	["d1", "d1ne"]	The instance families.
InstanceTypes	List	["ecs.g5.large"]	The instance types.
IoOptimized	Boolean	true	Indicates whether the instance type is I/O optimized.
NetworkTypes	List	VPC	The network types. Valid values: • VPC: VPC • Classic: classic network
SystemDiskCategories	List	cloud_ssd	The categories of system disks. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD
AvailableVolumeCategories	List	san_ssd	The categories of available Shared Block Storage devices.

Parameter	Type	Example	Description
DedicatedHostGenerations	List	I	The generation numbers of dedicated hosts.
LocalName	String	Hangzhou Zone G	The name of the zone in the local language.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeZones
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeZonesResponse>
      <Zones>
            <Zone>
                  <AvailableResourceCreation>
                        <ResourceTypes>Instance</ResourceTypes>
                        <ResourceTypes>Disk</ResourceTypes>
                  </AvailableResourceCreation>
                  <LocalName></LocalName>
                  <ZoneId>cn-qingdao-env17-amtest11001-b</ZoneId>
                  <AvailableDiskCategories>
                        <DiskCategories>cloud</DiskCategories>
                  </AvailableDiskCategories>
            </Zone>
            <Zone>
                  <AvailableResourceCreation>
                        <ResourceTypes>Instance</ResourceTypes>
                        <ResourceTypes>Disk</ResourceTypes>
                  </AvailableResourceCreation>
                  <LocalName></LocalName>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
                  <AvailableDiskCategories>
                        <DiskCategories>cloud</DiskCategories>
                  </AvailableDiskCategories>
            </Zone>
      </Zones>
      <RequestId>6DB97BCC-92BA-424D-A7C8-3F6486612BAE</RequestId>
</DescribeZonesResponse>
```

`JSON` format

```
{
  "RequestId": "A347EF0E-BBCC-4EFA-BD79-27AA3ACFD1BF",
  "Zones": {
    "Zone": [
      {
        "AvailableDiskCategories": {
          "DiskCategories": [
            "cloud"
          ]
        },
        "AvailableResourceCreation": {
          "ResourceTypes": [
            "Instance",
            "Disk"
          ]
        },
        "LocalName": "",
        "ZoneId": "cn-qingdao-env17-amtest11001-b"
      },
      {
        "AvailableDiskCategories": {
          "DiskCategories": [
            "cloud"
          ]
        },
        "AvailableResourceCreation": {
          "ResourceTypes": [
            "Instance",
            "Disk"
          ]
        },
        "LocalName": "",
        "ZoneId": "cn-qingdao-env17-amtest11001-a"
      }
    ]
  }
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
404	InvalidInstanceChargeType.NotFound	The InstanceChargeType does not exist in our records	The error message returned because the specified instance billing method does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidSpotStrategy	The specified SpotStrategy is not valid.	The error message returned because the specified SpotStrategy parameter is invalid.
404	InvalidAcceptLanguage.NotFound	Only Chinese (zh-CN), English (en-US), and Japanese (ja) are allowed.	The error message returned because the specified AcceptLanguage parameter is invalid. The valid values of this parameter are Chinese, English, and Japanese.

2.1.2.1.15.3. DescribeAvailableResource

You can call this operation to query resources in a zone. For example, you can query available resources in a zone before you create ECS instances (RunInstances) or before you modify instance specifications (ModifyInstanceSpec).

Description

Values for the `DestinationResource` parameter have dependencies. When you select a value in the following chain for the DestinationResource parameter, the more to the right the selected value is ordered, the more parameters you must specify.

- Sequence: `Zone > IoOptimized > InstanceType = Network = ddh > SystemDisk > DataDisk`
- For example:
  - If you set `DestinationResource` to `DataDisk`, you must specify the `IoOptimized`, `InstanceType`, `SystemDiskCategory`, and `DataDiskCategory` parameters.
  - If you set `DestinationResource` to `InstanceType`, you must specify the `IoOptimized` and `InstanceType` parameters.
  - Use the following parameter settings to query the ecs.g5.large resources in all zones of the China (Hangzhou) region: `RegionId=cn-qingdao-env17-d01 &DestinationResource=InstanceType &IoOptimized=optimized &InstanceType=ecs.g5.large`
  - Use the following parameter settings to query the zones where ecs.g5.large resources are available within the China (Hangzhou) region: `RegionId=cn-qingdao-env17-d01 &DestinationResource=Zone &IoOptimized=optimized &InstanceType=ecs.g5.large`

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAvailableResource	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to DescribeAvailableResource.
DestinationResource	String	Yes	InstanceType	The resource type. Valid values: • Zone: zone • IoOptimized: I/O optimized • InstanceType: instance type • SystemDisk: system disk • DataDisk: data disk • Network: network type • ddh: dedicated host For more information about how to set the DestinationResource parameter, see the preceding Description section.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the destination region. You can call the DescribeRegions operation to query the most recent region list.
ZoneId	String	No	cn-qingdao-env17-amtest11001-a	The ID of the zone. This parameter is empty by default. When this parameter is empty, the system returns resources that match the other criteria of all zones within the region specified by `RegionId`.
IoOptimized	String	No	optimized	Specifies whether the instance is I/O optimized. Valid values: • none: non-I/O optimized • optimized: I/O optimized Default value: optimized
DedicatedHostId	String	No	dh-bp165p6xk2tlw61e****	The ID of the dedicated host.

Parameter	Type	Required	Example	Description
InstanceType	String	No	ecs.g5.large	The instance type. For more information, see Instance types in ECS User Guide or call the DescribeInstanceTypes operation to query the most recent instance type list. When DestinationResource is set to SystemDisk or DataDisk, the InstanceType parameter is required.
SystemDiskCategory	String	No	cloud_ssd	The category of the system disk. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • ephemeral_ssd: local SSD • cloud_essd: enhanced SSD When DestinationResource is set to SystemDisk, InstanceType, or DataDisk, the SystemDiskCategory parameter is optional. Default value: cloud_efficiency
DataDiskCategory	String	No	cloud_ssd	The category of the data disk. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • ephemeral_ssd: local SSD • cloud_essd: enhanced SSD
NetworkCategory	String	No	vpc	The network type. Valid values: • vpc: VPC • classic: classic network

Parameter	Type	Required	Example	Description
Cores	Integer	No	2	The number of vCPUs of the instance type. For more information, see Instance types in ECS Production Introduction. The Cores parameter takes effect only when DestinationResource is set to InstanceType.
Memory	Float	No	8.0	The memory size of the instance type. Unit: GiB. For more information, see Instance types in ECS Production Introduction. The Memory parameter takes effect only when DestinationResource is set to InstanceType.
ResourceType	String	No	instance	The resource type. Valid values: • instance: ECS instance • disk: cloud disk • ddh: dedicated host

Response parameters

Parameter	Type	Example	Description
AvailableZones	Array		The collection of details about zones.
AvailableZone			
AvailableResources	Array		The available resources.
AvailableResource			
SupportedResources	Array		The supported resource types.
SupportedResource			
Max	Integer	2	The maximum number of resources of the type that can be created. No value is returned when this parameter is empty.

Parameter	Type	Example	Description
Min	Integer	1	The minimum value of resources of the type that can be created. No value is returned when the parameter is empty.
Status	String	Available	The status of the resource. Valid values: • Available • SoldOut
StatusCategory	String	WithStock	The stock status of the resource. Valid values: • WithStock: The resource is in sufficient stock. • ClosedWithStock: The resource is in low stock. We recommend that you use resources in sufficient stock. • WithoutStock: The resource is out of stock and will be replenished. We recommend that you use resources in sufficient stock. • ClosedWithoutStock: The resource is out of stock and will not be replenished. We recommend that you use resources in sufficient stock.
Unit	String	null	The unit of the resource. No value is returned when this parameter is empty.
Value	String	ecs.d1ne.xlarge	The value of the resource.
Type	String	InstanceType	The resource type. Valid values: • Zone: zone • IoOptimized: I/O optimzied • InstanceType: instance type • SystemDisk: system disk • DataDisk: data disk • Network: network type • ddh: dedicated host
RegionId	String	cn-qingdao-env17-d01	The ID of the region.

Parameter	Type	Example	Description
Status	String	Available	The status of the resource. Valid values: • Available • SoldOut
StatusCategory	String	WithStock	The stock status of the resource. Valid values: • WithStock: The resource is in sufficient stock. • ClosedWithStock: The resource is in low stock. We recommend that you use resources in sufficient stock. • WithoutStock: The resource is out of stock and will be replenished. We recommend that you use resources in sufficient stock. • ClosedWithoutStock: The resource is out of stock and will not be replenished. We recommend that you use resources in sufficient stock.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeAvailableResource
&RegionId=cn-qingdao-env17-d01
&DestinationResource=InstanceType
&IoOptimized=optimized
&InstanceType=ecs.g5.large
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAvailableResourceResponse>
      <RequestId>0041D94C-FB92-4C49-B115-259DA1CE1923</RequestId>
      <AvailableZones>
            <AvailableZone>
                  <Status>Available</Status>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <AvailableResources>
                        <AvailableResource>
                              <Type>InstanceType</Type>
                              <SupportedResources>
                                    <SupportedResource>
                                          <Status>Available</Status>
                                          <Value>ecs.g5.large</Value>
                                          <StatusCategory>WithStock</StatusCategory>
                                    </SupportedResource>
                              </SupportedResources>
                        </AvailableResource>
                  </AvailableResources>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
                  <StatusCategory>WithStock</StatusCategory>
            </AvailableZone>
      </AvailableZones>
</DescribeAvailableResourceResponse>
```

`JSON` format

```
{
    "RequestId": "0041D94C-FB92-4C49-B115-259DA1CE1923",
    "AvailableZones": {
        "AvailableZone": [
            {
                "Status": "Available",
                "RegionId": "cn-qingdao-env17-d01",
                "AvailableResources": {
                    "AvailableResource": [
                        {
                            "Type": "InstanceType",
                            "SupportedResources": {
                                "SupportedResource": [
                                    {
                                        "Status": "Available",
                                        "Value": "ecs.g5.large",
                                        "StatusCategory": "WithStock"
                                    }
                                ]
                            }
                        }
                    ]
                },
                "ZoneId": "cn-qingdao-env17-amtest11001-a",
                "StatusCategory": "WithStock"
            }
        ]
    }
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	Invalid.RegionId	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
404	Unavailable.Regions	The available regions does not exists	The error message returned because the specified RegionId parameter does not exist.
400	Invalid.InstanceChargeType	The specified InstanceChargeType is not valid.	The error message returned because the specified InstanceChargeType parameter is invalid.
400	Invalid.Param	The input parameter DestinationResource that is mandatory for processing this request is not supplied.	The error message returned because the required DestinationResource parameter is not specified.

HTTP status code	Error code	Error message	Description
404	Invalid.ResourceType	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter is invalid.
404	Invalid.DestinationResource	The specified DestinationResource is not valid.	The error message returned because the specified DestinationResource parameter is invalid.
404	Invalid.IoOptimized	The specified IoOptimized is not valid.	The error message returned because the specified IoOptimized parameter is invalid.
404	Invalid.NetworkCategory	The specified NetworkCategory is not valid.	The error message returned because the specified NetworkCategory parameter is invalid.
404	Invalid.SpotStrategy	The specified SpotStrategy is not valid.	The error message returned because the specified SpotStrategy parameter is invalid.
403	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist.	The error message returned because the specified DedicatedHostId parameter does not exist.
404	Invalid.NetworkType	The specified NetworkType is not valid.	The error message returned because the specified NetworkCategory parameter is invalid.
404	InvalidResourceId.NotFound	The specified ResourceId is not found in our records	The error message returned because the specified resource does not exist.
403	InvalidParam.TypeAndCpuMem.Conflict	The specified 'InstanceType' and 'Cores','Memory' are not blank at the same time.	The error message returned because none of the InstanceType, Cores, and Memory parameters is specified.
403	InvalidParam.Cores	The specified parameter 'Cores' should be empty	The error message returned because the Cores parameter is specified.
403	InvalidParam.Memory	The specified parameter 'Memory' should be empty	The error message returned because the Memory parameter is specified.

HTTP status code	Error code	Error message	Description
400	InvalidRegionId.Malformed	The specified parameter RegionId is not valid.	The error message returned because the specified RegionId parameter is invalid.

2.1.2.1.15.4. DescribeResourcesModification

You can call this operation to query available resources in a zone when you upgrade or downgrade instance types or replace system disks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeResourcesModification	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to DescribeResourcesModification.
DestinationResource	String	Yes	InstanceType	The type of the resource. Valid values: • InstanceType • SystemDisk
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
ResourceId	String	Yes	i-bp67acfmxazb4p****	The ID of the resource. For example, when DestinationResource is set to InstanceType, this parameter can be interpreted as InstanceId.
MigrateAcrossZone	Boolean	No	true	Specifies whether to allow cross-cluster instance type upgrades. Valid values: • true • false Default value: false

Parameter	Type	Required	Example	Description
InstanceType	String	No	ecs.g5.large	The instance type. For more information, see Instance types in ECS User Guide or call the DescribeInstanceTypes operation to query the most recent instance type list. When DestinationResource is set to SystemDisk, you must specify this parameter.
Cores	Integer	No	2	The number of vCPUs of the instance type. For more information, see Instance types in ECS User Guide. This parameter is valid only when DestinationResource is set to InstanceType.
Memory	Float	No	8.0	The memory size of the instance type. Unit: GiB. For more information, see Instance types in ECS User Guide. This parameter is valid only when DestinationResource is set to InstanceType.

Response parameters

Parameter	Type	Example	Description
AvailableZones	Array		The collection of zones.
AvailableZone			
AvailableResources	Array		The collection of available resources.
AvailableResource			
SupportedResources	Array		The collection of supported resources.
SupportedResource			
Max	Integer	2	The maximum number of resources of a specific type that can be created. No value is returned when this parameter is empty.

Parameter	Type	Example	Description
Min	Integer	1	The minimum number of resources of a specific type that can be created. No value is returned when this parameter is empty.
Status	String	Available	The status of the resource. Valid values: • Available • SoldOut
StatusCategory	String	WithStock	The stock status of the resource. Valid values: • WithStock: sufficient stock • ClosedWithStock: insufficient stock • WithoutStock: out of stock
Unit	String	null	The unit of the resource type. No value is returned when this parameter is empty.
Value	String	ecs.g5.large	The value of the resource.
Type	String	InstanceType	The type of the resource. Valid values: • Zone • IoOptimized • InstanceType • SystemDisk • DataDisk • Network
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
Status	String	Available	The status of the resource. Valid values: • Available • SoldOut
StatusCategory	String	WithStock	The stock status of the resource. Valid values: • WithStock: sufficient stock • ClosedWithStock: insufficient stock • WithoutStock: out of stock

Parameter	Type	Example	Description
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeResourcesModification
&DestinationResource=InstanceType
&RegionId=cn-qingdao-env17-d01
&ResourceId=i-bp67acfmxazb4p****
&MigrateAcrossZone=true
&OperationType=Upgrade
&InstanceType=ecs.g5.large
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeResourcesModificationResponse>
      <RequestId>994F2B60-B050-49E3-9283-44655FAC7A4X</RequestId>
      <AvailableZones>
            <AvailableZone>
                  <Status>Available</Status>
                  <RegionId>cn-qingdao-env17-d01</RegionId>
                  <AvailableResources>
                        <AvailableResource>
                              <Type>InstanceType</Type>
                              <SupportedResources>
                                    <SupportedResource>
                                          <Status>Available</Status>
                                          <Value>ecs.g5.xlarge</Value>
                                    </SupportedResource>
                                    <SupportedResource>
                                          <Status>Available</Status>
                                          <Value>ecs.t5-lc1m2.large</Value>
                                    </SupportedResource>
                                    <SupportedResource>
                                          <Status>Available</Status>
                                          <Value>ecs.t5-c1m4.2xlarge</Value>
                                    </SupportedResource>
                                    <SupportedResource>
                                          <Status>Available</Status>
                                          <Value>ecs.c5.xlarge</Value>
                                    </SupportedResource>
                              </SupportedResources>
                        </AvailableResource>
                  </AvailableResources>
                  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
            </AvailableZone>
      </AvailableZones>
</DescribeResourcesModificationResponse>
```

`JSON` format

```
{
    "RequestId": "994F2B60-B050-49E3-9283-44655FAC7A4X",
    "AvailableZones": {
        "AvailableZone": [
            {
                "Status": "Available",
                "RegionId": "cn-qingdao-env17-d01",
                "AvailableResources": {
                    "AvailableResource": [
                        {
                            "Type": "InstanceType",
                            "SupportedResources": {
                                "SupportedResource": [
                                    {
                                        "Status": "Available",
                                        "Value": "ecs.g5.xlarge"
                                    },
                                    {
                                        "Status": "Available",
                                        "Value": "ecs.t5-lc1m2.large"
                                    },
                                    {
                                        "Status": "Available",
                                        "Value": "ecs.t5-c1m4.2xlarge"
                                    },
                                    {
                                        "Status": "Available",
                                        "Value": "ecs.c5.xlarge"
                                    }
                                ]
                            }
                        }
                    ]
                },
                "ZoneId": "cn-qingdao-env17-amtest11001-a"
            }
        ]
    }
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	Invalid.RegionId	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter is invalid.

HTTP status code	Error code	Error message	Description
404	Unavailable.Regions	The available regions does not exists	The error message returned because the specified RegionId parameter is invalid.
400	Invalid.OperationType	The specified operationType is not valid.	The error message returned because the specified OperationType parameter is invalid.
400	Invalid.Param	The input parameter DestinationResource that is mandatory for processing this request is not supplied.	The error message returned because the required DestinationResource parameter is not specified.
404	Invalid.ResourceType	The ResourceType provided does not exist in our records.	The error message returned because the specified DestinationResource parameter is invalid.
404	Invalid.DestinationResource	The specified DestinationResource is not valid.	The error message returned because the specified DestinationResource parameter is invalid.
404	Invalid.IoOptimized	The specified IoOptimized is not valid.	The error message returned because the specified IoOptimized parameter is invalid.
404	Invalid.NetworkCategory	The specified NetworkCategory is not valid.	The error message returned because the specified NetworkCategory parameter is invalid.
404	Invalid.SpotStrategy	The specified SpotStrategy is not valid.	The error message returned because the specified SpotStrategy parameter is invalid.
400	Invalid.InstanceChargeType	The specified InstanceChargeType is not valid.	The error message returned because the specified InstanceChargeType parameter is invalid.
404	Invalid.ResourceId	The specified ResourceId is not valid.	The error message returned because the specified ResourceId parameter is invalid.
404	Invalid.InstancePayType	The specified InstancePayType is not valid.	The error message returned because the specified InstanceChargeType parameter is invalid.

HTTP status code	Error code	Error message	Description
404	OperationDenied	The specified operation is denied as this instanceType is not support.	The error message returned because the instance type does not support this operation.
403	InvalidDedicatedHostId.NotFound	The specified DedicatedHostId does not exist in our records.	The error message returned because the specified dedicated host does not exist in the current region.
404	InvalidInstanceId.NotFound	The specified InstanceId provided does not exist in our records.	The error message returned because the specified instance does not exist.
404	InvalidResourceId.NotFound	The specified ResourceId is not found in our records	The error message returned because the specified ResourceId parameter does not exist.
403	InvalidParam.TypeAndCpuMem.Conflict	The specified 'InstanceType' and 'Cores','Memory' are not blank at the same time.	The error message returned because none of the InstanceType, Cores, or Memory parameters is specified.
403	InvalidParam.Cores	The specified parameter 'Cores' should be empty	The error message returned because the Cores parameter is specified.
403	InvalidParam.Memory	The specified parameter 'Memory' should be empty	The error message returned because the Memory parameter is specified.

2.1.2.1.16. Operations and monitoring

2.1.2.1.16.1. GetInstanceConsoleOutput

You can call this operation to obtain the command output of an instance. The returned command output is encoded in Base64.

Description

- ECS is a virtualized cloud-based service and cannot be connected to display devices. However, the command output for the last start, restart, or shutdown of each instance is cached. You can call GetInstanceConsoleOutput to obtain this information.
- You cannot obtain the command output of Windows instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetInstanceConsoleOutput	The operation that you want to perform. Set the value to GetInstanceConsoleOutput.
InstanceId	String	Yes	i-bp1c1xhsrac2coiw****	The ID of the instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
ConsoleOutput	String	V2VsY29tZSB0byBDZW50T1MgCgpDaGVja2luZyBmaWxlc3lzdGVtcwpDaGVja2luZyBhbGwgZmlsZSBzeXN0ZW1zLgpbL3NiaW4vZnNjay5leHQ0ICgxKSAtLSAvXSBmc2NrLmV4dDQgLWEgL2Rldi92ZGExIAovZGV2L3ZkYTE6IGNsZWFuLCAzMjAxNi8yNjIxNDQwIGZpbGVzLCA0NDc5NzQvMTA0ODU1MDQgYmxvY2tzCgpFbnRlcmluZyBub24taW50ZXJhY3RpdmUgc3RhcnR1cCApDYWxsaW5nIHRoZSBzeXN0ZW0gYWN0aXZpdHkgZGF0YSBjb2xsZWN0b3IgKHNhZGMpLi4uIAoKQnJpbmdpbmcgcmcgdXAgaW50ZXJmYWNlIGV0aDA6ICAKRGV0ZXJtaW5pbmcgSVAgaW5mb3JtYXRpb24gZm9yIGV0aDAuLi4gZG9uZS4KCmFsaXl1bi1zZXJ2aWNlIHN0YXJ0L3J1bm5pbmcsIHByb2Nlc3MgMTczMwpmaW5pc2hlZAoKQ2VudE9TIHJlbGVhc2UgNi44ICChGaW5hbCkKS2VybmVsIDIuNi4zMi02OTYuMy4yLmVsNi5pNjg2IG9uIGFuIGk2ODYKCmlaMnplZDk2ZTQ2MmF5cjBxeioqKioqIGxvZ2luOg==	The command output of the instance, which is encoded in Base64.
InstanceId	String	i-bp1c1xhsrac2coiw****	The ID of the instance.
LastUpdateTime	String	2018-03-22 10:04:57	The time when the instance was last started, restarted, or shut down. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
http://ecs.example.com/?Action=GetInstanceConsoleOutput
&InstanceId=i-bp1c1xhsrac2coiw****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetInstanceConsoleOutputResponse>
      <RequestId>22A1933F-AD02-4560-A6A7-53CF2231D942</RequestId>
      <InstanceId>i-bp1c1xhsrac2coiw****</InstanceId>
      <LastUpdateTime>2018-03-22 10:04:57</LastUpdateTime>
      <ConsoleOutput>V2VsY29tZSB0byBDZW50T1MgCgpDaGVja2luZyBmaWxlc3lzdGVtcwpDaGVja2luZyBhbGwgZmlsZSBzeXN0ZW1zLgpbL3NiaW4vZnNjay5leHQ0ICgxKSAtLSAvXSBmc2NrLmV4dDQgLWEgL2Rldi92ZGExIAovZGV2L3ZkYTE6IGNsZWFuLCAzMjAxNi8yNjIxNDQwIGZpbGVzLCA0NDc5NzQvMTA0ODU1MDQgYmxvY2tzCgpFbnRlcmluZyBub24taW50ZXJhY3RpdmUgc3RhcnR1cApDYWxsaW5nIHRoZSBzeXN0ZW0gYWN0aXZpdHkgZGF0YSBjb2xsZWN0b3IgKHNhZGMpLi4uIAoKQnJpbmdpbmcgdXAgaW50ZXJmYWNlIGV0aDA6ICAKRGV0ZXJtaW5pbmcgSVAgaW5mb3JtYXRpb24gZm9yIGV0aDAuLi4gZG9uZS4KCmFsaXl1bi1zZXJ2aWNlIHN0YXJ0L3J1bm5pbmcsIHByb2Nlc3MgMTczMwpmaW5pc2hlZAoKQ2VudE9TIHJlbGVhc2UgNi44ICChaW5hbCkKS2VybmVsIDIuNi4zMi02OTYuMy4yLmVsNi5pNjg2IG9uIGFuIGk2ODYKCmlaMnplZDk2ZTQ2MmF5cjBxeioqKioqIGxvZ2luOg==</ConsoleOutput>
</GetInstanceConsoleOutputResponse>
```

`JSON` format

```
{
    "RequestId": "22A1933F-AD02-4560-A6A7-53CF2231D942",
    "InstanceId": "i-bp1c1xhsrac2coiw****",
    "LastUpdateTime": "2018-03-22 10:04:57",
    "ConsoleOutput": "V2VsY29tZSB0byBDZW50T1MgCgpDaGVja2luZyBmaWxlc3lzdGVtcwpDaGVja2luZyBhbGwgZmlsZSBzeXN0ZW1zLgpbL3NiaW4vZnNjay5leHQ0ICgxKSAtLSAvXSBmc2NrLmV4dDQgLWEgL2Rldi92ZGExIAovZGV2L3ZkYTE6IGNsZWFuLCAzMjAxNi8yNjIxNDQwIGZpbGVzLCA0NDc5NzQvMTA0ODU1MDQgYmxvY2tzCgpFbnRlcmluZyBub24taW50ZXJhY3RpdmUgc3RhcnR1cApDYWxsaW5nIHRoZSBzeXN0ZW0gYWN0aXZpdHkgZGF0YSBjb2xsZWN0b3IgKHNhZGMpLi4uIAoKQnJpbmdpbmcgdXAgaW50ZXJmYWNlIGV0aDA6ICAKRGV0ZXJtaW5pbmcgSVAgaW5mb3JtYXRpb24gZm9yIGV0aDAuLi4gZG9uZS4KCmFsaXl1bi1zZXJ2aWNlIHN0YXJ0L3J1bm5pbmcsIHByb2Nlc3MgMTczMwpmaW5pc2hlZAoKQ2VudE9TIHJlbGVhc2UgNi44ICChaW5hbCkKS2VybmVsIDIuNi4zMi02OTYuMy4yLmVsNi5pNjg2IG9uIGFuIGk2ODYKCmlaMnplZDk2ZTQ2MmF5cjBxeioqKioqIGxvZ2luOg=="
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
404	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
405	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
405	NotSupported	%s	The error message returned because the operation is invalid.
429	Throttling	%s	The error message returned because the request is denied due to throttling.

2.1.2.1.16.2. GetInstanceScreenshot

You can call this operation to obtain screenshots of an instance.

Description

ECS returns an instance screenshot that is in the JPG format and encoded in Base64. You must decode the screenshot. We recommend that you call this operation for troubleshooting and diagnosis. When you call this operation, take note of the following items:

- The instance must be in the Running state.
- If you call this operation on the same instance for multiple times, the call interval must be at least 10 seconds. Otherwise, the `Throttling` error code is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetInstanceScreenshot	The operation that you want to perform. Set the value to GetInstanceScreenshot.
InstanceId	String	Yes	i-bp1gbz20g229bvu5****	The ID of the instance.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the instance. You can call the DescribeRegions operation to query the most recent region list.
WakeUp	Boolean	No	false	Specifies whether to wake up the instance that is in sleep mode. Default value: false

Response parameters

Parameter	Type	Example	Description
InstanceId	String	i-bp1gbz20g229bvu5****	The ID of the instance.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
Screenshot	String	iVBORw0KGgoA...AAABJRU5ErkJggg==	The JPG-formatted instance screenshot, which is encoded in Base64.

Examples

Sample requests

```
http://ecs.example.com/?Action=GetInstanceScreenshot
&InstanceId=i-bp1gbz20g229bvu5****
&RegionId=cn-qingdao-env17-d01
&WakeUp=false
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetInstanceScreenshotResponse>
      <RequestId>22A1933F-AD02-4560-A6A7-53CF2231D942</RequestId>
      <InstanceId>i-bp1gbz20g229bvu5****</InstanceId>
      <Screenshot>iVBORw0KGgoA...AAABJRU5ErkJggg==</Screenshot>
</GetInstanceScreenshotResponse>
```

`JSON` format

```
{
    "RequestId": "22A1933F-AD02-4560-A6A7-53CF2231D942",
    "InstanceId": "i-bp1gbz20g229bvu5****",
    "Screenshot": "iVBORw0KGgoA...AAABJRU5ErkJggg=="
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	%s	The error message returned because a required parameter is not specified.
404	InvalidParameter	%s	The error message returned because a specified parameter is invalid.
405	IncorrectInstanceStatus	%s	The error message returned because the operation is not supported while the instance is in the current state.
405	NotSupported	%s	The error message returned because the operation is invalid.
429	Throttling	%s	The error message returned because the request is denied due to throttling.

2.1.2.1.16.3. DescribeDiskMonitorData

You can call this operation to query the monitoring data of a disk over a specific period of time.

Description

The monitoring data includes read IOPS, write IOPS, read bandwidth (byte/s), write bandwidth (byte/s), read latency (μs), and write latency (μs) of the disk.

When you call this operation, take note of the following items:

- Only monitoring data about disks that are in the Running (`In_use`) state can be queried.

  > **Note** A portion may be missing from the returned monitoring data. This is because the system cannot obtain the relevant information, such as when a disk is not in the Running (`In_Use`) state.

- Up to 400 monitoring data entries can be returned at a time. An error is returned if the value calculated based on the following formula is greater than 400: `(EndTime - StartTime)/Period` .
- You can query the monitoring data in the past 30 days. If the value of `StartTime` is more than 30

days earlier than the current time, an error is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDiskMonitorData	The operation that you want to perform. Set the value to DescribeDiskMonitorData.
DiskId	String	Yes	d-bp1bq5g3dxxo1x4o****	The ID of the disk.
EndTime	String	Yes	2014-07-23T12:09:00Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
StartTime	String	Yes	2014-07-23T12:07:00Z	The start of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
Period	Integer	No	60	The interval at which to retrieve monitoring data. Unit: seconds. Valid values: • 60 • 600 • 3600 Default value: 60

Response parameters

Parameter	Type	Example	Description
MonitorData	Array		The collection of monitoring data about the disk.

Parameter	Type	Example	Description
DiskMonitorData			
BPSRead	Integer	0	The read bandwidth of the system disk. Unit: Byte/s.
BPSTotal	Integer	204	The total read and write bandwidth of the system disk. Unit: Byte/s.
BPSWrite	Integer	204	The write bandwidth of the system disk. Unit: Byte/s.
DiskId	String	d-bp1bq5g3dxxo1x4o****	The ID of the disk.
IOPSRead	Integer	0	The number of read I/O operations per second on the system disk.
IOPSTotal	Integer	0	The total number of read and write I/O operations per second on the system disk.
IOPSWrite	Integer	0	The number of write I/O operations per second on the system disk.
LatencyRead	Integer	0	The read latency of the disk. Unit: μs.
LatencyWrite	Integer	0	The write latency of the disk. Unit: μs.
TimeStamp	String	2014-07-23T12:07:00Z	The timestamp of the data query. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	3	The total number of returned monitoring data entries.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeDiskMonitorData
&DiskId=d-bp1bq5g3dxxo1x4o****
&EndTime=2014-07-23T12:09:00Z
&StartTime=2014-07-23T12:07:00Z
&Period=60
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDiskMonitorDataResponse>
          <MonitorData>
                    <DiskMonitorData>
                              <BPSRead>0</BPSRead>
                              <BPSTotal>0</BPSTotal>
                              <BPSWrite>0</BPSWrite>
                              <DiskId>d-bp1bq5g3dxxo1x4o****</DiskId>
                              <IOPSRead>0</IOPSRead>
                              <IOPSTotal>0</IOPSTotal>
                              <IOPSWrite>0</IOPSWrite>
                              <TimeStamp>2014-07-23T12:07:00Z</TimeStamp>
                    </DiskMonitorData>
                    <DiskMonitorData>
                              <BPSRead>0</BPSRead>
                              <BPSTotal>204</BPSTotal>
                              <BPSWrite>204</BPSWrite>
                              <DiskId>d-bp1bq5g3dxxo1x4o****</DiskId>
                              <IOPSRead>0</IOPSRead>
                              <IOPSTotal>0</IOPSTotal>
                              <IOPSWrite>0</IOPSWrite>
                              <TimeStamp>2014-07-23T12:08:00Z</TimeStamp>
                    </DiskMonitorData>
                    <DiskMonitorData>
                              <BPSRead>0</BPSRead>
                              <BPSTotal>819</BPSTotal>
                              <BPSWrite>819</BPSWrite>
                              <DiskId>d-bp1bq5g3dxxo1x4o****</DiskId>
                              <IOPSRead>0</IOPSRead>
                              <IOPSTotal>0</IOPSTotal>
                              <IOPSWrite>0</IOPSWrite>
                              <TimeStamp>2014-07-23T12:09:00Z</TimeStamp>
                    </DiskMonitorData>
          </MonitorData>
          <RequestId>BF666447-B171-4076-BCBA-48437C18FD76</RequestId>
          <TotalCount>3</TotalCount>
</DescribeDiskMonitorDataResponse>
```

`JSON` format

```
{
    "MonitorData": {
        "DiskMonitorData": [
            {
                "BPSRead": 0,
                "BPSTotal": 0,
                "BPSWrite": 0,
                "DiskId": "d-bp1bq5g3dxxo1x4o****",
                "IOPSRead": 0,
                "IOPSTotal": 0,
                "IOPSWrite": 0,
                "TimeStamp": "2014-07-23T12:07:00Z"
            },
            {
                "BPSRead": 0,
                "BPSTotal": 204,
                "BPSWrite": 204,
                "DiskId": "d-bp1bq5g3dxxo1x4o****",
                "IOPSRead": 0,
                "IOPSTotal": 0,
                "IOPSWrite": 0,
                "TimeStamp": "2014-07-23T12:08:00Z"
            },
            {
                "BPSRead": 0,
                "BPSTotal": 819,
                "BPSWrite": 819,
                "DiskId": "d-bp1bq5g3dxxo1x4o****",
                "IOPSRead": 0,
                "IOPSTotal": 0,
                "IOPSWrite": 0,
                "TimeStamp": "2014-07-23T12:09:00Z"
            }
        ]
    },
    "RequestId": "A48A0A77-34F5-4C33-9066-9E8D2DA0D8E2",
    "TotalCount": 3
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The DiskId provided does not exist in our records.	The error message returned because the specified DiskId parameter does not exist. Check whether the DiskId parameter is correct.

HTTP status code	Error code	Error message	Description
400	InvalidStartTime.Malformed	The specified parameter "StartTime" is not valid.	The error message returned because the specified StartTime parameter is invalid.
400	InvalidEndTime.Malformed	The specified parameter "EndTime" is not valid.	The error message returned because the specified EndTime parameter is invalid.
400	InvalidPeriod.ValueNotSupported	The specified parameter "Period" is not valid.	The error message returned because the specified Period parameter is invalid.
400	InvalidStartTime.TooEarly	The specified parameter "StartTime" is too early.	The error message returned because the specified StartTime parameter is more than 30 days earlier than the current time.
400	InvalidParameter.TooManyDataQueried	Too many data queried.	The error message returned because the amount of queried monitoring data has reached the upper limit.
400	Throttling	Request was denied due to request throttling.	The error message returned because the request is denied due to throttling. Try again later.
400	InvalidInstanceType.NotSupportCredit	The InstanceType of the specified instance does not support credit.	The error message returned because the instance type does not support burstable instances.
400	InvalidParameter.EndTime	The specified parameter EndTime is earlier than StartTime.	The error message returned because the end time is earlier than the start time.
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.16.4. DescribeInstanceMonitorData

You can call this operation to query all monitoring data about an ECS instance. The monitoring data includes the vCPU utilization, CPU credits of the burstable instance, received data traffic, sent data traffic, and average bandwidth.

Description

When you call this operation, take note of the following items:

- Up to 400 monitoring data entries can be returned at a time. An error is returned if the value calculated based on the following formula is greater than 400: `(EndTime - StartTime)/Period`.
- You can query the monitoring data from up to the past 30 days. If the value of StartTime is more than 30 days earlier than the current time, an error is returned.
- A portion may be missing from the returned monitoring data. This is because the system cannot obtain the relevant information, such as when the instance is in the Stopped state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceMonitorData	The operation that you want to perform. If you use a custom HTTP URL or HTTPS URL to make an API request, you must specify the `Action` parameter. Set the value to DescribeInstanceMonitorData.
InstanceId	String	Yes	i-bp1a36962lrhj4ab****	The ID of the instance.
StartTime	String	Yes	2014-10-29T23:00:00Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (`ss`) is not `00`, the time is rounded up to the next minute.
EndTime	String	Yes	2014-10-30T08:00:00Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (`ss`) is not `00`, the time is rounded up to the next minute.
Period	Integer	No	60	The interval at which to retrieve monitoring data. Unit: seconds. Valid values: • 60 • 600 • 3600 Default value: 60

Response parameters

Parameter	Type	Example	Description
MonitorData	Array		The collection of monitoring data about the instance.
InstanceMonitorData			
BPSRead	Integer	1000	The read bandwidth of the system disk. Unit: Byte/s.
BPSWrite	Integer	13585	The write bandwidth of the system disk. Unit: Byte/s.
CPU	Integer	2	The vCPU utilization of the instance. Unit: percent (%).
CPUAdvanceCreditBalance	Float	0.4	The overdrawn CPU credits of the burstable instance.
CPUCreditBalance	Float	120	The total CPU credits of the burstable instance.
CPUCreditUsage	Float	30	The number of CPU credits consumed by the burstable instance.
CPUNotpaidSurplusCreditUsage	Float	0.5	This parameter is not supported.
IOPSRead	Integer	1000	The number of read I/O operations per second on the system disk.
IOPSWrite	Integer	200	The number of write I/O operations per second on the system disk.
InstanceId	String	i-bp1a36962lrhj4*****	The ID of the instance.
InternetBandwidth	Integer	10	The public bandwidth of the instance. Unit: Kbit/s.

Parameter	Type	Example	Description
InternetRX	Integer	122	The public data traffic received by the instance at the time of monitoring data query. Unit: Kbit/s.
InternetTX	Integer	343	The public data traffic sent by the instance at the time of monitoring data query. Unit: Kbit/s.
IntranetBandwidth	Integer	10	The internal bandwidth of the instance. Unit: Kbit/s.
IntranetRX	Integer	122	The internal data traffic received by the instance at the time of monitoring data query. Unit: Kbit/s.
IntranetTX	Integer	343	The internal data traffic sent by the instance at the time of monitoring data query. Unit: Kbit/s.
TimeStamp	String	2014-10-30T05:00:00Z	The timestamp of the data query.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeInstanceMonitorData
&EndTime=2014-10-30T08:00:00Z
&InstanceId=i-bp1a36962lrhj4ab****
&StartTime=2014-10-29T23:00:00Z
&Period=3600
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeInstanceMonitorDataResponse>
      <RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
      <MonitorData>
            <InstanceMonitorData>
                  <InstanceId>i-bp1a36962lrhj4ab****</InstanceId>
                  <CPU>2</CPU>
                  <IntranetRX>122</IntranetRX>
                  <IntranetTX>343</IntranetTX>
                  <IntranetFlow>675</IntranetFlow>
                  <IntranetBandwidth>10</IntranetBandwidth>
                  <InternetRX>122</InternetRX>
                  <InternetTX>343</InternetTX>
                  <InternetFlow>675</InternetFlow>
                  <InternetBandwidth>10</InternetBandwidth>
                  <IOPSRead>1000</IOPSRead>
                  <IOPSWrite>200</IOPSWrite>
                  <BPSRead>1000</BPSRead>
                  <BPSWrite>13585</BPSWrite>
                  <TimeStamp>2014-10-30T05:00:00Z</TimeStamp>
            </InstanceMonitorData>
      </MonitorData>
</DescribeInstanceMonitorDataResponse>
```

`JSON` format

```
{
    "RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
    "MonitorData": {
        "InstanceMonitorData": [
            {
                "InstanceId": "i-bp1a36962lrhj4ab****",
                "CPU": 0,
                "IntranetRX": 122,
                "IntranetTX": 343,
                "IntranetFlow": 675,
                "IntranetBandwidth": 10,
                "InternetRX": 122,
                "InternetTX": 343,
                "InternetFlow": 675,
                "InternetBandwidth": 10,
                "IOPSRead": 1000,
                "IOPSWrite": 13585,
                "BPSRead": 1000,
                "BPSWrite": 200,
                "TimeStamp": "2014-10-30T05:00:00Z"
            }
        ]
    }
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidInstanceId.NotFound	The specified InstanceId does not exist.	The error message returned because the specified InstanceId parameter does not exist.
400	InvalidStartTime.Malformed	The specified parameter "StartTime" is not valid.	The error message returned because the specified StartTime parameter is invalid.
400	InvalidEndTime.Malformed	The specified parameter "EndTime" is not valid.	The error message returned because the specified EndTime parameter is invalid.
400	InvalidPeriod.ValueNotSupported	The specified parameter "Period" is not valid.	The error message returned because the specified Period parameter is invalid.
400	InvalidStartTime.TooEarly	The specified parameter "StartTime" is too early.	The error message returned because the specified StartTime parameter is more than 30 days earlier than the current time.
400	InvalidParameter.TooManyDataQueried	Too many data queried.	The error message returned because the amount of queried monitoring data has reached the upper limit.
400	Throttling	Request was denied due to request throttling.	The error message returned because the request is denied due to throttling. Try again later.
400	InvalidStartTime.ValueNotSupported	The specified parameter StartTime is later than EndTime.	The error message returned because the end time is earlier than the start time.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an internal error has occurred. Try again later. If the problem persists, submit a ticket.

2.1.2.1.16.5. DescribeSnapshotMonitorData

You can call this operation to query all monitoring data about snapshot size changes in a region over the past 30 days.

Description

When you call this operation, take note of the following items:

- Up to 400 monitoring data entries can be returned at a time. An error is returned if the value calculated based on the following formula is greater than 400: `(EndTime - StartTime)/Period`.
- You can query the monitoring data from up to the past 30 days. If the value of `StartTime` is more than 30 days earlier than the current time, an error is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnapshotMonitorData	The operation that you want to perform. Set the value to DescribeSnapshotMonitorData.
EndTime	String	Yes	2019-05-10T03:00:00Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.
StartTime	String	Yes	2019-05-10T00:00:00Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
Period	Integer	No	60	The interval at which to retrieve snapshot size changes. Unit: seconds. Valid values: • 60 • 600 • 3600 Default value: 60
Category	String	No	Standard	The type of the snapshot. Valid values: • Standard: normal snapshot • Flash: local snapshot Default value: Standard

Response parameters

Parameter	Type	Example	Description
MonitorData	Array		The collection of monitoring data about snapshot size changes.
DataPoint			
Size	Long	243036848128	The total size of the snapshots. Unit: bytes.
TimeStamp	String	2019-05-10T04:00:00Z	The timestamp that corresponds to a snapshot size.
RequestId	String	9F8163A8-F5DE-47A2-A572-4E062D223E09	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?&Action=DescribeSnapshotMonitorData
&RegionId=cn-qingdao-env17-d01
&StartTime=2019-05-10T00:00:00Z
&EndTime=2019-05-10T03:00:00Z
&Period=60
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnapshotMonitorDataResponse>
     <MonitorData>
          <DataPoint>
               <element>
                    <Size>243036848128</Size>
                    <TimeStamp>2019-05-10T01:00:00Z</TimeStamp>
               </element>
               <element>
                    <Size>243036848128</Size>
                    <TimeStamp>2019-05-10T02:00:00Z</TimeStamp>
               </element>
               <element>
                    <Size>243036848128</Size>
                    <TimeStamp>2019-05-10T03:00:00Z</TimeStamp>
               </element>
          </DataPoint>
     </MonitorData>
     <RequestId>9F8163A8-F5DE-47A2-A572-4E062D223E09</RequestId>
</DescribeSnapshotMonitorDataResponse>
```

`JSON` format

```
{
    "RequestId": "9F8163A8-F5DE-47A2-A572-4E062D223E09",
    "MonitorData": {
        "DataPoint": [
            {
                "TimeStamp": "2019-05-10T01:00:00Z",
                "Size": 243036848128
            },
            {
                "TimeStamp": "2019-05-10T02:00:00Z",
                "Size": 243036848128
            },
            {
                "TimeStamp": "2019-05-10T03:00:00Z",
                "Size": 243036848128
            }
        ]}
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	InvalidStartTime.Malformed	The specified parameter "StartTime" is not valid.	The error message returned because the specified StartTime parameter is invalid.

HTTP status code	Error code	Error message	Description
400	InvalidEndTime.Malformed	The specified parameter "EndTime" is not valid.	The error message returned because the specified EndTime parameter is invalid.
400	InvalidPeriod.ValueNotSupported	The specified parameter "Period" is not valid.	The error message returned because the specified Period parameter is invalid.
400	InvalidStartTime.TooEarly	The specified parameter "StartTime" is too early.	The error message returned because the specified StartTime parameter is more than 30 days earlier than the current time.
400	InvalidParameter.TooManyDataQueried	Too many data queried.	The error message returned because the amount of queried monitoring data has reached the upper limit.
400	Throttling	Request was denied due to request throttling.	The error message returned because the request is denied due to throttling. Try again later.

2.1.2.1.16.6. DescribeEniMonitorData

You can call this operation to query all monitoring data about traffic on a secondary elastic network interface (ENI) over a specific period of time.

Description

The monitoring data includes traffic sent and received over the internal network, the number of packets sent and received by the secondary ENI, and the number of dropped packets sent and received by the secondary ENI. A portion may be missing from the returned monitoring data. This is because the system cannot obtain the relevant information. For example, if the instance to which the secondary ENI is bound is in the Stopped state, or if the secondary ENI is not bound to an instance and in the Available state, monitoring data about traffic on the ENI cannot be obtained. When you call this operation, take note of the following items:

- Up to 400 monitoring data entries can be returned at a time. An error is returned if the value calculated based on the following formula is greater than 400: (EndTime – StartTime)/Period.
- You can query monitoring data from up to the past 30 days. If the value of StartTime is more than 30 days earlier than the current time, an error is returned.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeEniMonitorData	The operation that you want to perform. Set the value to DescribeEniMonitorData.
EndTime	String	Yes	2018-05-21T12:22:00Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
InstanceId	String	Yes	i-m5e88p52tbip9r2x****	The ID of the instance to which the secondary ENI is bound.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the secondary ENI. You can call the DescribeRegions operation to query the most recent region list.
StartTime	String	Yes	2018-05-21T12:19:00Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. If the value of seconds (ss) is not 00, the time is rounded up to the next minute.
EniId	String	No	eni-m5e0ajic0vbwx7l3****	The ID of the secondary ENI. By default, all secondary ENIs that are bound to the specified instance are queried.
Period	Integer	No	60	The interval at which to retrieve monitoring data. Unit: seconds. Valid values: • 60 • 600 • 3600 Default value: 60

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
MonitorData	Array		The collection of monitoring data about traffic on the secondary ENI.
EniMonitorData			
DropPacketRx	String	0	The number of inbound internal data packets discarded by the secondary ENI.
DropPacketTx	String	0	The number of outbound internal data packets discarded by the secondary ENI.
EniId	String	eni-m5e0ajic0vbwx7l3****	The ID of the secondary ENI.
IntranetRx	String	0	The internal data traffic received by the secondary ENI. Unit: Kbit/s.
IntranetTx	String	0	The internal data traffic sent by the secondary ENI. Unit: Kbit/s.
PacketRx	String	0	The number of internal data packets received by the secondary ENI. Unit: packets.
PacketTx	String	0	The number of internal data packets sent by the secondary ENI. Unit: packets.
TimeStamp	String	2018-05-21T03:22:00Z	The timestamp of the data query. The time follows the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time is displayed in UTC.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TotalCount	Integer	4	The total number of returned entries.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeEniMonitorData
&EndTime=2018-05-21T12:22:00Z
&InstanceId=i-m5e88p52tbip9r2x****
&RegionId=cn-qingdao-env17-d01
&StartTime=2018-05-21T12:19:00Z
&EniId=eni-m5e0ajic0vbwx7l3****
&Period=60
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeEniMonitorDataResponse>
   <RequestId>5A03C2BA-3BCE-4A87-8076-7DC1629</RequestId>
   <TotalCount>4</TotalCount>
   <MonitorData>
         <EniMonitorData>
               <PacketTx>0</PacketTx>
               <TimeStamp>2018-05-21T03:22:00Z</TimeStamp>
               <IntranetOut>0</IntranetOut>
               <DropPacketRx>0</DropPacketRx>
               <IntranetIn>0</IntranetIn>
               <EniId>eni-m5e0ajic0vbwx7l3****</EniId>
               <DropPacketTx>0</DropPacketTx>
               <PacketRx>0</PacketRx>
         </EniMonitorData>
         <EniMonitorData>
               <PacketTx>0</PacketTx>
               <TimeStamp>2018-05-21T03:21:00Z</TimeStamp>
               <IntranetOut>0</IntranetOut>
               <DropPacketRx>0</DropPacketRx>
               <IntranetIn>0</IntranetIn>
               <EniId>eni-m5e0ajic0vbwx7l3****</EniId>
               <DropPacketTx>0</DropPacketTx>
               <PacketRx>0</PacketRx>
         </EniMonitorData>
         <EniMonitorData>
               <PacketTx>52240</PacketTx>
               <TimeStamp>2018-05-21T03:19:00Z</TimeStamp>
               <IntranetOut>73344</IntranetOut>
               <DropPacketRx>0</DropPacketRx>
               <IntranetIn>467</IntranetIn>
               <EniId>eni-m5e0ajic0vbwx7l3****</EniId>
               <DropPacketTx>0</DropPacketTx>
               <PacketRx>6603</PacketRx>
         </EniMonitorData>
         <EniMonitorData>
               <PacketTx>34925</PacketTx>
               <TimeStamp>2018-05-21T03:20:00Z</TimeStamp>
               <IntranetOut>48871</IntranetOut>
               <DropPacketRx>0</DropPacketRx>
               <IntranetIn>350</IntranetIn>
               <EniId>eni-m5e0ajic0vbwx7l3****</EniId>
               <DropPacketTx>0</DropPacketTx>
               <PacketRx>4888</PacketRx>
         </EniMonitorData>
   </MonitorData>
</DescribeEniMonitorDataResponse>
```

`JSON` format

```
{
 "RequestId":"5A03C2BA-3BCE-4A87-8076-7DC1629",
 "MonitorData":{
     "EniMonitorData":[
         {
             "PacketTx":0,
             "TimeStamp":"2018-05-21T03:22:00Z",
             "IntranetOut":0,
             "DropPacketRx":0,
             "IntranetIn":0,
             "EniId":"eni-m5e0ajic0vbwx7l3****",
             "DropPacketTx":0,
             "PacketRx":0
         },
         {
             "PacketTx":0,
             "TimeStamp":"2018-05-21T03:21:00Z",
             "IntranetOut":0,
             "DropPacketRx":0,
             "IntranetIn":0,
             "EniId":"eni-m5e0ajic0vbwx7l3****",
             "DropPacketTx":0,
             "PacketRx":0
         },
         {
             "PacketTx":52240,
             "TimeStamp":"2018-05-21T03:19:00Z",
             "IntranetOut":73344,
             "DropPacketRx":0,
             "IntranetIn":467,
             "EniId":"eni-m5e0ajic0vbwx7l3****",
             "DropPacketTx":0,
             "PacketRx":6603
         },
         {
             "PacketTx":34925,
             "TimeStamp":"2018-05-21T03:20:00Z",
             "IntranetOut":48871,
             "DropPacketRx":0,
             "IntranetIn":350,
             "EniId":"eni-m5e0ajic0vbwx7l3****",
             "DropPacketTx":0,
             "PacketRx":4888
         }
     ]
 }
}
```


Error codes

HTTP status code	Error code	Error message	Description
404	InvalidDiskId.NotFound	The DiskId provided does not exist in our records.	The error message returned because the specified disk does not exist. Check whether the disk ID is correct.
403	InvalidStartTime.Malformed	The specified parameter "StartTime" is not valid.	The error message returned because the specified StartTime parameter is invalid.
403	InvalidEndTime.Malformed	The specified parameter "EndTime" is not valid.	The error message returned because the specified EndTime parameter is invalid.
403	InvalidPeriod.ValueNotSupported	The specified parameter "Period" is not valid.	The error message returned because the specified Period parameter is invalid.
403	InvalidStartTime.TooEarly	The specified parameter "StartTime" is too early.	The error message returned because the specified StartTime parameter is more than 30 days earlier than the current time.
403	InvalidParameter.TooManyDataQueried	Too many data queried.	The error message returned because the amount of queried monitoring data has reached the upper limit.
403	Throttling	Request was denied due to request throttling.	The error message returned because the request is denied due to throttling. Try again later.
403	InvalidInstanceType.NotSupportCredit	The InstanceType of the specified instance does not support credit.	The error message returned because the instance type does not support burstable instances.
403	InvalidParameter.EndTime	The specified parameter EndTime is earlier than StartTime.	The error message returned because the end time is earlier than the start time.
4003	InvalidParam.Malformed	The specified parameter "EniId" and "InstanceId" are not valid	The error message returned because a specified parameter is invalid.

2.1.2.1.17. Tags

2.1.2.1.17.1. AddTags

You can call this operation to add or overwrite one or more tags on your ECS resources. You can add or overwrite tags on instances, disks, snapshots, images, and security groups to facilitate resource management.

Description

When you call this operation, take note of the following items:

- Up to 20 tags can be added to each ECS resource.
- `Tag.N.Key` must match `Tag.N.Value` based on the value of N.
- If you add a tag that has the same key (`Tag.N.Key`) as an existing tag on the specified resource, the new tag value (`Tag.N.Value`) overwrites the original tag value.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddTags	The operation that you want to perform. Set the value to AddTags.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the resource on which you want to add or overwrite tags. You can call the DescribeRegions operation to query the most recent region list.
ResourceType	String	Yes	instance	The type of the resource. Valid values: • disk • instance • image • securitygroup • snapshot All values must be in lowercase.
ResourceId	String	Yes	i-bp1ecr********5go2go	The ID of the resource. When the value of the ResourceType parameter is instance, this parameter can be interpreted as InstanceId.

Parameter	Type	Required	Example	Description
Tag.N.value	String	No	FinanceTagValue	The value of tag N to be bound to the resource. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	Finance	The key of tag N to be bound to the resource. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.
Tag.N.Key	String	No	Finance	The key of tag N to be bound to the resource. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	FinanceTagValue	The value of tag N to be bound to the resource. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=AddTags
&RegionId=cn-qingdao-env17-d01
&ResourceType=instance
&ResourceId=i-bp1ecr5g****
&Tag.1.Key=Finance
&Tag.1.Value=FinanceTagValue
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddTagsResponse>
      <RequestId>C46FF5A8-C5F0-4024-8262-B16B639225A0</RequestId>
</AddTagsResponse>
```

`JSON` format

```
{
  "RequestId": "C46FF5A8-C5F0-4024-8262-B16B639225A0"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
404	InvalidResourceId.NotFound	The specified ResourceId is not found in our records.	The error message returned because the specified ResourceId parameter does not exist.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.

HTTP status code	Error code	Error message	Description
400	OperationDenied.QuotaExceed	The quota of tags on resource is beyond permitted range.	The error message returned because the maximum number of tags that can be bound to the resource has been reached.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
403	QuotaExceed.Tags	%s	The error message returned because the number of tags has reached the quota.

2.1.2.1.17.2. RemoveTags

You can call this operation to unbind one or more tags from a resource such as an instance, disk, snapshot, image, or security group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveTags	The operation that you want to perform. Set the value to RemoveTags.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the resource from which you want to unbind tags. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ResourceId	String	Yes	s-946ntx4**	The ID of the resource from which you want to unbind tags. When the value of the ResourceType parameter is instance, this parameter can be interpreted as InstanceId.
ResourceType	String	Yes	snapshot	The type of the resource. Valid values: • disk • instance • image • securitygroup • snapshot All values must be in lowercase.
Tag.N.value	String	No	FinanceTagValue	The value of tag N of the resource. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	Finance	The key of tag N of the resource. **Note** This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.
Tag.N.Key	String	No	Finance	The key of tag N of the resource. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 64 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	FinanceTagValue	The value of tag N of the resource. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=RemoveTags
&RegionId=cn-qingdao-env17-d01
&ResourceId=s-946ntx4****
&ResourceType=snapshot
&Tag.1.Key=Finance
&Tag.1.Value=FinanceTagValue
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RemoveTagsResponse>
      <RequestId>6A2C8AB5-E15D-478C-B56A-CF3DAF060028</RequestId>
</RemoveTagsResponse>
```

`JSON` format

```
{
  "RequestId": "6A2C8AB5-E15D-478C-B56A-CF3DAF060028"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidResourceId.NotFound	The specified ResourceId is not found in our records.	The error message returned because the specified ResourceId parameter does not exist.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.

HTTP status code	Error code	Error message	Description
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidResourceType.NotFound	The specified ResourceType does not exist.	The error message returned because the specified ResourceType parameter is invalid.

2.1.2.1.17.3. DescribeTags

You can call this operation to query available tags. You can query tags by specifying filter conditions such as resource type, resource ID, tag key, and tag value. The specified filter conditions have logical AND relations. Only the tags that meet all the specified filter conditions are returned.

Description

If a tag key is specified and no tag values are specified, all tags that contain the tag key are returned. If a tag key-value pair is specified, only tags that exactly match the key-value pair are returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTags	The operation that you want to perform. Set the value to DescribeTags.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	50	The number of entries to return on each page. Valid values: 1 to 100 Default value: 50
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1
ResourceType	String	No	snapshot	The type of the resource. Valid values: • disk • instance • image • securitygroup • snapshot All values must be in lowercase.
ResourceId	String	No	s-946ntx4wr	The ID of the resource. When the value of the ResourceType parameter is instance, this parameter can be interpreted as InstanceId.
Tag.N.value	String	No	Finance	The value of tag N bound to the resource. Note This parameter will be removed in the future. We recommend that you use the Tag.N.Value parameter to ensure future compatibility.
Tag.N.key	String	No	Finance	The key of tag N bound to the resource. Note This parameter will be removed in the future. We recommend that you use the Tag.N.Key parameter to ensure future compatibility.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	Finance	The key of tag N bound to the resource. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 64 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	Finance	The value of tag N bound to the resource. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	50	The number of entries returned per page.
RequestId	String	B04B8CF3-4489-432D-83BA-6F128E4F2295	The ID of the request.
Tags	Array		The collection of details about tags that match all the filter conditions.
Tag			
ResourceTypeCount	Struct		The number of resource types.
Ddh	Integer	1	The number of dedicated hosts to which the tag is bound.
Disk	Integer	15	The number of disks to which the tag is bound.
Eni	Integer	5	The number of ENIs to which the tag is bound.

Parameter	Type	Example	Description
Image	Integer	6	The number of images to which the tag is bound.
Instance	Integer	45	The number of instances to which the tag is bound.
KeyPair	Integer	17	The number of key pairs to which the tag is bound.
LaunchTemplate	Integer	6	The number of launch templates to which the tag is bound.
Securitygroup	Integer	4	The number of security groups to which the tag is bound.
Snapshot	Integer	15	The number of snapshots to which the tag is bound.
Volume	Integer	6	The number of extended volumes to which the tag is bound.
TagKey	String	test	The tag key.
TagValue	String	api	The tag value.
TotalCount	Integer	1	The total number of tags.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeTags
&RegionId=cn-qingdao-env17-d01
&PageSize=50
&PageNumber=1
&ResourceType=snapshot
&ResourceId=s-946ntx4**
&Tag.1.Key=Finance
&Tag.1.Value=Finance
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeTagsResponse>
      <RequestId>B04B8CF3-4489-432D-83BA-6F128E4F2295</RequestId>
      <PageNumber>1</PageNumber>
      <PageSize>50</PageSize>
      <Tags>
            <Tag>
                  <TagKey>test</TagKey>
                  <TagValue>api</TagValue>
            </Tag>
      </Tags>
      <TotalCount>1</TotalCount>
</DescribeTagsResponse>
```

`JSON` format

```
{
  "PageNumber": 1,
  "PageSize": 50,
  "RequestId": "B04B8CF3-4489-432D-83BA-6F128E4F2295",
  "Tags": {
    "Tag": [
      {
        "TagKey": "test",
        "TagValue": "api"
      }
    ]
  },
  "TotalCount": 1
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.

HTTP status code	Error code	Error message	Description
400	InvalidTagKey.Malformed	The parameter Tag.n.Key is illegal.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The parameter Tag.n.Value is illegal.	The error message returned because the specified Tag.N.Value parameter is invalid.

2.1.2.1.17.4. TagResources

You can call this operation to create and bind tags to specified ECS resources.

Description

Before you bind tags to a resource, the system checks the number of existing tags on the resource. An error message is returned if the maximum number of tags is reached.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	TagResources	The operation that you want to perform. Set the value to TagResources.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the resource. You can call the DescribeRegions operation to query the most recent region list.
ResourceId.N	RepeatList	Yes	i-bp67acfmxazb4ph***	The IDs of resources. Valid values of N: 1 to 50.
ResourceType	String	Yes	instance	The type of the resource. Valid values: • instance: ECS instance • disk: disk • snapshot: snapshot • image: image • securitygroup: security group • volume: storage volume • eni: elastic network interface (ENI) • ddh: dedicated host • keypair: SSH key pair

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	Test	The key of tag N to be bound to the resource. Valid values of N: 1 to 20. The tag key cannot be an empty string. It can be up to 128 characters in length and cannot start with acs: or aliyun. It cannot contain http:// or https://.
Tag.N.Value	String	No	Test	The value of tag N to be bound to the resource. Valid values of N: 1 to 20. The tag value can be an empty string. It can be up to 128 characters in length. It cannot start with acs: or contain http:// or https://.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=TagResources
&RegionId=cn-qingdao-env17-d01
&ResourceId.1=i-bp1j6qtvdm8w0z1o0****
&ResourceId.2=i-bp1j6qtvdm8w0z1oP****
&ResourceType=instance
&Tag.1.Key=Test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TagResourcesResponse>
    <RequestId>C46FF5A8-C5F0-4024-8262-B16B639225A0</RequestId>
</TagResourcesResponse>
```

`JSON` format

```
{
    "RequestId":"C46FF5A8-C5F0-4024-8262-B16B639225A0"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	%s	The error message returned because the specified RegionId parameter does not exist.
404	MissingParameter.TagOwnerUid	The parameter - TagOwnerUid should not be null	The error message returned because the TagOwnerUid parameter is not specified.
404	MissingParameter.TagOwnerBid	The parameter - TagOwnerBid should not be null	The error message returned because the TagOwnerBid parameter is not specified.
404	MissingParameter.ResourceType	The parameter - ResourceType should not be null	The error message returned because the ResourceType parameter is not specified.
404	MissingParameter.Tags	The parameter - Tags should not be null	The error message returned because the tag-related parameters are not specified.
404	MissingParameter.RegionId	The parameter - RegionId should not be null	The error message returned because the RegionId parameter is not specified.
403	PermissionDenied.TagOwnerUid	The specified operator not have permission to set TagOwnerUid value.	The error message returned because you are not authorized to set the owner of the tag.
403	PermissionDenied.Scope	The specified operator not have permission to set Scope value.	The error message returned because the specified operator is not authorized to specify the Scope parameter.
400	NumberExceed.ResourceIds	The ResourceIds parameter's number is exceed , Valid : 50	The error message returned because more than 50 resource IDs are specified in the ResourceId.N parameter.
400	NumberExceed.Tags	The Tags parameter's number is exceed , Valid : 20	The error message returned because more than 20 tags are specified.

HTTP status code	Error code	Error message	Description
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
404	InvalidResourceId.NotFound	The specified ResourceIds are not found in our records.	The error message returned because the specified ResourceId parameter does not exist.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
400	OperationDenied.QuotaExceed	The quota of tags on resource is beyond permitted range.	The error message returned because the maximum number of tags that can be bound to the resource has been reached.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	Invalid.Scope	The specified scope is invalid.	The error message returned because the specified scope is invalid.

HTTP status code	Error code	Error message	Description
403	NoPermission.Tag	The operator is not permission for the tag.	The error message returned because you are not authorized to manage the resource tag.
403	QuotaExceed.Tags	%s	The error message returned because the number of tags has reached the quota.

2.1.2.1.17.5. ListTagResources

You can call this operation to query the tags that are bound to one or more ECS instances.

Description

- Specify in the request at least one of the following parameters or parameter pairs to determine a query object: the `ResourceId.N` parameter, the `Tag.N` parameter pair (`Tag.N.Key` and `Tag.N.Value`), and the `TagFilter.N` parameter pair (TagFilter.N.TagValues.N and TagFilter.N.TagKey).
- If one of the following sets of request parameters is specified as filter conditions, the response contains only ECS resources that meet all these filter conditions:
  - `Set 1: Tag.N.Key, Tag.N.Value` , and `ResourceId.N`
  - `Set 2: TagFilter.N.TagValues.N, TagFilter.N.TagKey` , and `ResourceId.N`

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListTagResources	The operation that you want to perform. Set the value to ListTagResources.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the resource. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ResourceType	String	Yes	instance	The type of the resource. Valid values: • instance: ECS instance • disk: Block Storage device • snapshot: snapshot • image: image • securitygroup: security group • volume: storage volume • eni: elastic network interface (ENI) • ddh: dedicated host • keypair: SSH key pair
TagFilter.N.TagKey	String	Yes	env	The key of tag N used for fuzzy search of ECS resources. It must be 1 to 128 characters in length. Valid values of N: 1 to 5. The `TagFilter.N` parameter pair (TagFilter.N.TagKey and TagFilter.N.TagValues.N) specifies tags used for fuzzy search of ECS resources that are bound with the tags. In these tags, a tag key may correspond to one or more tag values. Fuzzy search may have a latency of two seconds. A fuzzy search can return a result set of up to 5,000 resources. • When a tag key (`TagFilter.N.TagKey`) is used for fuzzy search of ECS resources, tag values (`TagFilter.N.TagValues.N`) that correspond to this tag key must not be specified. For example, when you use the `environment` tag key for fuzzy search of ECS resources, you can set `TagFilter.1.TagKey` to `env` and leave `TagFilter.1.TagValues.N` empty. • When a tag value (`TagFilter.N.TagValues.N`) is used for fuzzy search of ECS resources, the corresponding tag key (`TagFilter.N.TagKey`) must be specified. For example, when you use the `env` tag key and the `product` tag value for fuzzy search of ECS resources, you can set `TagFilter.1.TagKey` to `env` and `TagFil`

Parameter	Type	Required	Example	Description
				ter.1.TagValues.1 to proc . • If you specify multiple tag keys, only the ECS resources whose tags contain all the specified tag keys are returned. • If you specify a tag key and multiple corresponding tag values, all the ECS resources that are bound with any of these tag key-value pairs are returned. **Note** The TagFilter.N parameter pair (TagFilter.N.TagKey and TagFilter.N.TagValues.N) cannot be used together with the Tag.N parameter pairs (Tag.N.Key and Tag.N.Value). Otherwise, an error message is returned.
ResourceId.N	RepeatList	No	i-bp1j6qtvdm8w0z1o0***	The IDs of ECS resources. Valid values of N: 1 to 50.
Tag.N.Key	String	No	FinanceDeptKey	The key of tag N used for exact search of ECS resources. It must be 1 to 128 characters in length. Valid values of N: 1 to 20. The Tag.N parameter pair (Tag.N.Key and Tag.N.Value) specifies tags used for exact search of ECS resources that are bound with the tags. In these tags, a tag key corresponds to only one tag value. • If you specify only Tag.N.Key, the ECS resources whose tags contain all the specified tag keys are returned. • If you specify only Tag.N.Value, the InvalidParameter.TagValue error is returned. • If you specify multiple tag key-value pairs, only the ECS resources that are bound with all these tag key-value pairs are returned.

Parameter	Type	Required	Example	Description
Tag.N.Value	String	No	FinanceDeptValue	The value of tag N used for exact search of ECS resources. It must be 1 to 128 characters in length. Valid values of N: 1 to 20.
TagFilter.N.TagValues.N	RepeatList	No	product	The value of tag N used for fuzzy search of ECS resources. It must be 1 to 128 characters in length. Valid values of N: 1 to 5.
NextToken	String	No	caeba0bbb2be03f84eb48b699f0a4883	The token for starting the next query.

Response parameters

Parameter	Type	Example	Description
NextToken	String	caeba0bbb2be03f84eb48b699f0a4883	The token for starting the next query.
RequestId	String	484256DA-D816-44D2-9D86-B6EE4D5BA78C	The ID of the request.
TagResources	Array		The collection of details about resources and tags, such as resource IDs, resource types, and tag key-value pairs.
TagResource			
ResourceId	String	i-bp1j6qtvdm8w0z1o0***	The ID of the resource.
ResourceType	String	instance	The type of the resource.
TagKey	String	FinanceDeptKey	The tag key of the resource.
TagValue	String	FinanceDeptValue	The tag value of the resource.

Examples

Sample requests

```
https://ecs.example.com/?Action=ListTagResources
&RegionId=cn-qingdao-env17-d01
&ResourceType=instance
&ResourceId.1=i-bp1j6qtvdm8w0z1o0***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListTagResourcesResponse>
      <TagResources>
            <TagResource>
                  <ResourceType>instance</ResourceType>
                  <TagValue>FinanceTagValue</TagValue>
                  <ResourceId>i-bp1j6qtvdm8w0z1o0***</ResourceId>
                  <TagKey>FinanceTagKey</TagKey>
            </TagResource>
      </TagResources>
      <RequestId>DE65F6B7-7566-4802-9007-96F2494AC5XX</RequestId>
</ListTagResourcesResponse>
```

`JSON` format

```
{
    "TagResources": {
        "TagResource": [
            {
                "ResourceType": "instance",
                "TagValue": "FinanceTagValue",
                "ResourceId": "i-bp1j6qtvdm8w0z1o0***",
                "TagKey": "FinanceTagKey"
            }
        ]
    },
    "RequestId": "DE65F6B7-7566-4802-9007-96F2494AC512"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	%s	The error message returned because the specified RegionId parameter does not exist.
404	MissingParameter.TagOwnerUid	The parameter - TagOwnerUid should not be null	The error message returned because the TagOwnerUid parameter is not specified.

HTTP status code	Error code	Error message	Description
404	MissingParameter.TagOwnerBid	The parameter - TagOwnerBid should not be null	The error message returned because the TagOwnerBid parameter is not specified.
404	MissingParameter.ResourceType	The parameter - ResourceType should not be null	The error message returned because the ResourceType parameter is not specified.
404	MissingParameter.Tags	The parameter - Tags should not be null	The error message returned because the tag-related parameters are not specified.
404	MissingParameter.RegionId	The parameter - RegionId should not be null	The error message returned because the RegionId parameter is not specified.
403	PermissionDenied.TagOwnerUid	The specified operator not have permission to set TagOwnerUid value.	The error message returned because you are not authorized to set the owner of the tag.
403	PermissionDenied.Scope	The specified operator not have permission to set Scope value.	The error message returned because the specified operator is not authorized to specify the Scope parameter.
400	NumberExceed.ResourceIds	The ResourceIds parameter's number is exceed , Valid : 50	The error message returned because more than 50 resource IDs are specified in the ResourceId.N parameter.
400	NumberExceed.Tags	The Tags parameter's number is exceed , Valid : 20	The error message returned because more than 20 tags are specified.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
404	InvalidResourceId.NotFound	The specified ResourceIds are not found in our records.	The error message returned because the specified ResourceId.N parameter does not exist.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.
400	OperationDenied.QuotaExceed	The quota of tags on resource is beyond permitted range.	The error message returned because the maximum number of tags that can be bound to the resource has been reached.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	Invalid.Scope	The specified scope is invalid.	The error message returned because the specified scope is invalid.
403	NoPermission.Tag	The operator is not permission for the tag.	The error message returned because you are not authorized to manage the resource tag.

2.1.2.1.17.6. UntagResources

You can call this operation to unbind tags from specified ECS resources. After a tag is unbound from a resource, it is automatically deleted if it is not bound to any other resources.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	UntagResources	The operation that you want to perform. Set the value to UntagResources.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the resource. You can call the DescribeRegions operation to query the most recent region list.
ResourceId.N	RepeatList	Yes	i-bp67acfmxazb4ph***	The IDs of resources. Valid values of N: 1 to 50.
ResourceType	String	Yes	instance	The type of the resource. Valid values: • instance: ECS instance • disk: disk • snapshot: snapshot • image: image • securitygroup: security group • volume: storage volume • eni: elastic network interface (ENI) • ddh: dedicated host • keypair: SSH key pair • launchtemplate: launch template
TagKey.N	RepeatList	No	FinanceDept	The key of tag N bound to the resource. Valid values of N: 1 to 20.
All	Boolean	No	false	Specifies whether to unbind all tags from the resource. This parameter takes effect only when the TagKey.N parameter is not specified. Valid values: • true • false Default value: false

Response parameters

Parameter	Type	Example	Description
RequestId	String	C46FF5A8-C5F0-4024-8262-B16B639225A0	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=UntagResources
&RegionId=cn-qingdao-env17-d01
&ResourceType=instance
&ResourceId.1=i-bp1j6qtvdm8w0z1o0***
&TagKey.1=FinanceDept
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UntagResourcesResponse>
    <RequestId>C46FF5A8-C5F0-4024-8262-B16B639225A0</RequestId>
</UntagResourcesResponse>
```

`JSON` format

```
{
    "RequestId":"C46FF5A8-C5F0-4024-8262-B16B639225A0"
}
```

Error codes

HTTP status code	Error code	Error message	Description
404	InvalidRegionId.NotFound	%s	The error message returned because the specified RegionId parameter does not exist.
404	MissingParameter.TagOwnerUid	The parameter - TagOwnerUid should not be null	The error message returned because the TagOwnerUid parameter is not specified.
404	MissingParameter.TagOwnerBid	The parameter - TagOwnerBid should not be null	The error message returned because the TagOwnerBid parameter is not specified.
404	MissingParameter.ResourceType	The parameter - ResourceType should not be null	The error message returned because the ResourceType parameter is not specified.

HTTP status code	Error code	Error message	Description
404	MissingParameter.Tags	The parameter - Tags should not be null	The error message returned because the tag-related parameters are not specified.
404	MissingParameter.RegionId	The parameter - RegionId should not be null	The error message returned because the RegionId parameter is not specified.
403	PermissionDenied.TagOwnerUid	The specified operator not have permission to set TagOwnerUid value.	The error message returned because you are not authorized to set the owner of the tag.
403	PermissionDenied.Scope	The specified operator not have permission to set Scope value.	The error message returned because the specified operator is not authorized to specify the Scope parameter.
400	NumberExceed.ResourceIds	The ResourceIds parameter's number is exceed , Valid : 50	The error message returned because more than 50 resource IDs are specified in the ResourceId.N parameter.
400	NumberExceed.Tags	The Tags parameter's number is exceed , Valid : 20	The error message returned because more than 20 tags are specified.
400	Duplicate.TagKey	The Tag.N.Key contain duplicate key.	The error message returned because the specified tag key already exists. Tag keys must be unique.
404	InvalidResourceId.NotFound	The specified ResourceIds are not found in our records.	The error message returned because the specified ResourceId.N parameter does not exist.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
400	InvalidTagKey.Malformed	The specified Tag.n.Key is not valid.	The error message returned because the specified Tag.N.Key parameter is invalid.
400	InvalidTagValue.Malformed	The specified Tag.n.Value is not valid.	The error message returned because the specified Tag.N.Value parameter is invalid.

HTTP status code	Error code	Error message	Description
400	OperationDenied.QuotaExceed	The quota of tags on resource is beyond permitted range.	The error message returned because the maximum number of tags that can be bound to the resource has been reached.
403	InvalidResourceId.NotSupported	The specified ResourceId does not support tagging.	The error message returned because the specified resource does not support tagging.
400	InvalidTag.Mismatch	The specified Tag.n.Key and Tag.n.Value are not match.	The error message returned because the specified Tag.N.Key and Tag.N.Value parameters do not match.
400	InvalidTagCount	The specified tags are beyond the permitted range.	The error message returned because the number of specified tags exceeds the upper limit.
404	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	Invalid.Scope	The specified scope is invalid.	The error message returned because the specified scope is invalid.
403	NoPermission.Tag	The operator is not permission for the tag.	The error message returned because you are not authorized to manage the resource tag.

2.1.2.1.18. Other operations

2.1.2.1.18.1. DescribeTasks

You can call this operation to query the progress of one or more asynchronous tasks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTasks	The operation that you want to perform. Set the value to DescribeTasks.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the task. You can call the DescribeRegions operation to query the most recent region list.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	2	The number of entries to return on each page. Valid values: 1 to 100. Default value: 10.
TaskIds	String	No	t-bp1hvgwromzv32iq****,t-bp179lofu2pv768w****	The IDs of tasks. You can specify up to 100 task IDs at a time. Separate multiple tasks IDs with commas (,).
TaskAction	String	No	ImportImage	The name of the operation to which the task corresponds. Valid values: • ImportImage • ExportImage
TaskStatus	String	No	Finished	The status of the task. Valid values: • Finished • Processing • Pending • Deleted • Paused This parameter is empty by default.
StartTime	String	No	2015-11-23T15:10:00Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
EndTime	String	No	2015-11-23T15:16:00Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	2	The number of entries returned per page.
RegionId	String	cn-qingdao-env17-d01	The region ID of the task.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
TaskSet	Array of Task		Details about the tasks.
Task			
CreationTime	String	2015-11-24T12:50Z	The time when the task was created.
FinishedTime	String	2015-11-24T12:50Z	The time when the task was completed.
SupportCancel	String	true	Indicates whether the task can be canceled.
TaskAction	String	IMPORT_IMAGE	The name of the task.
TaskId	String	t-bp1hvgwromzv32iq****	The ID of the task.
TaskStatus	String	Finished	The status of the task.
TotalCount	Integer	2	The total number of entries returned.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeTasks
&RegionId=cn-qingdao-env17-d01
&PageNumber=1
&PageSize=2
&TaskIds=t-bp1hvgwromzv32iq****
&TaskAction=ImportImage
&TaskStatus=Finished
&StartTime=2015-11-23T15:10:00Z
&EndTime=2015-11-23T15:16:00Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeTasksResponse>
    <PageNumber>1</PageNumber>
    <TotalCount>2</TotalCount>
    <PageSize>2</PageSize>
    <RegionId>cn-qingdao-env17-d01</RegionId>
    <RequestId>E5C82807-5588-4661-9A96-350B206A7623</RequestId>
    <TaskSet>
        <Task>
            <CreationTime>2015-11-24T12:50Z</CreationTime>
            <FinishedTime>2015-11-24T12:50Z</FinishedTime>
            <SupportCancel>true</SupportCancel>
            <TaskAction>IMPORT_IMAGE</TaskAction>
            <TaskStatus>Finished</TaskStatus>
            <TaskId>t-bp1hvgwromzv32iq****</TaskId>
        </Task>
        <Task>
            <CreationTime>2015-11-23T15:10Z</CreationTime>
            <FinishedTime>2015-11-23T15:16Z</FinishedTime>
            <SupportCancel>true</SupportCancel>
            <TaskAction>IMPORT_IMAGE</TaskAction>
            <TaskStatus>Finished</TaskStatus>
            <TaskId>t-bp179lofu2pv768w****</TaskId>
        </Task>
    </TaskSet>
</DescribeTasksResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 2,
    "PageSize": 2,
    "RegionId": "cn-qingdao-env17-d01",
    "TaskSet": [
        {
            "Task": [
                {
                    "CreationTime": "2015-11-24T12:50Z",
                    "FinishedTime": "2015-11-24T12:50Z",
                    "SupportCancel": true,
                    "TaskAction": "ImportImage",
                    "TaskStatus": "Finished",
                    "TaskId": "t-bp1hvgwromzv32iq****"
                },
                {
                    "CreationTime": "2015-11-23T15:10Z",
                    "FinishedTime": "2015-11-23T15:16Z",
                    "SupportCancel": true,
                    "TaskAction": "ImportImage",
                    "TaskStatus": "Finished",
                    "TaskId": "t-bp179lofu2pv768w****"
                }
            ]
        }
    ],
    "RequestId": "F746C690-D9EA-4F87-AF31-8E1910FAB541"
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "RegionId" that is mandatory for processing the request is not supplied.	The error message returned because the RegionId parameter is not specified.
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.

2.1.2.1.18.2. DescribeTaskAttribute

You can call this operation to query the details about an asynchronous task.

This operation support the following asynchronous task types:

- Image import (ImportImage)
- Image export (ExportImage)

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTaskAttribute	The operation that you want to perform. Set the value to DescribeTaskAttribute.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the task. You can call the DescribeRegions operation to query the most recent region list.
TaskId	String	Yes	t-taskid	The ID of the task. You can call the DescribeTasks operation to query the list of task IDs.

Response parameters

Parameter	Type	Example	Description
CreationTime	String	2015-11-23T02:13Z	The time when the task was created.
FailedCount	Integer	0	The number of failed tasks.
FinishedTime	String	2015-11-23T02:19Z	The time when the task was completed.
OperationProgressSet	Array		The collection of task-related data such as the status and information of each subtask.
OperationProgress			
ErrorCode	String	ParameterInvalid	The error code.
ErrorMsg	String	The specified RegionId parameter is invalid.	The error message.
OperationStatus	String	Success	The status of the operation.
RelatedItemSet	Array		The collection of related items.
RelatedItem			

Parameter	Type	Example	Description
Name	String	OSSObject	The name of the related item.
Value	String	MYOSSPRE_m-23f8tcp***_t-23ym6mv***.vhd	The value of the related item.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.
SuccessCount	Integer	1	The number of completed tasks.
SupportCancel	String	true	Indicates whether the task can be canceled. Valid values: • true: The task can be canceled. • false: The task cannot be canceled.
TaskAction	String	ExportImage	The operation name of the task.
TaskId	String	t-taskid	The ID of the task.
TaskProcess	String	100%	The progress of the task.
TaskStatus	String	Finished	The status of the task.
TotalCount	Integer	1	The total number of tasks.

Examples

Sample requests

```
https://ecs.example.com/?Action=DescribeTaskAttribute
&RegionId=cn-qingdao-env17-d01
&TaskId=t-taskid
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeTaskAttributeResponse>
    <CreationTime>2015-11-23T02:13Z</CreationTime>
    <OperationProgressSet>
        <OperationProgress>
            <RelatedItemSet>
                <RelatedItem>
                    <Name>OSSBucket</Name>
                    <Value>image-temp</Value>
                </RelatedItem>
                <RelatedItem>
                    <Name>OSSObject</Name>
                    <Value>MYOSSPRE_m-23f8tcp***_t-23ym6mv***.vhd</Value>
                </RelatedItem>
                <RelatedItem>
                    <Name>ImageFormat</Name>
                    <Value>vhd</Value>
                </RelatedItem>
            </RelatedItemSet>
            <ErrorMsg></ErrorMsg>
            <ErrorCode></ErrorCode>
            <OperationStatus>Success</OperationStatus>
        </OperationProgress>
    </OperationProgressSet>
    <FinishedTime>2015-11-23T02:19Z</FinishedTime>
    <FailedCount>0</FailedCount>
    <SupportCancel>true</SupportCancel>
    <TotalCount>1</TotalCount>
    <SuccessCount>1</SuccessCount>
    <RequestId>EF0C5969-279B-49C8-AD83-BACCC74DD38C</RequestId>
    <RegionId>cn-qingdao-env17-d01</RegionId>
    <TaskAction>ExportImage</TaskAction>
    <TaskStatus>Finished</TaskStatus>
    <TaskProcess>100%</TaskProcess>
    <TaskId>t-23ym6mv***</TaskId>
</DescribeTaskAttributeResponse>
```

`JSON` format

```
{
    "CreationTime": "2015-11-23T02:13Z",
    "OperationProgressSet": {
        "OperationProgress": [
            {
                "RelatedItemSet": {
                    "RelatedItem": [
                        {
                            "Name": "OSSBucket",
                            "Value": "image-temp"
                        },
                        {
                            "Name": "OSSObject",
                            "Value": "MYOSSPRE_m-23f8tcp***_t-23ym6mv***.vhd"
                        },
                        {
                            "Name": "ImageFormat",
                            "Value": "vhd"
                        }
                    ]
                },
                "ErrorMsg": "",
                "ErrorCode": "",
                "OperationStatus": "Success"
            }
        ]
    },
    "FinishedTime": "2015-11-23T02:19Z",
    "FailedCount": 0,
    "SupportCancel": true,
    "TotalCount": 1,
    "SuccessCount": 1,
    "RequestId": "4BE2C7FE-C7A4-4675-A153-174E032AABFB",
    "RegionId": "cn-qingdao-env17-d01",
    "TaskAction": "ExportImage",
    "TaskStatus": "Finished",
    "TaskProcess": "100%",
    "TaskId": "t-23ym6mv***"
}
```


Error codes

HTTP status code	Error code	Error message	Description
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "RegionId" that is mandatory for processing the request is not supplied.	The error message returned because the RegionId parameter is not specified.
400	MissingParameter	An input parameter "TaskId" that is mandatory for processing the request is not supplied.	The error message returned because the TaskId parameter is not specified.
400	InvalidTaskId.NotFound	The specified "TaskId" is not found.	The error message returned because the specified TaskId parameter does not exist.

2.1.2.1.18.3. CancelTask

You can call this operation to cancel a running task.

Description

You can call this operation to cancel the following tasks:

- Image import (ImportImage)
- Image export (ExportImage)

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CancelTask	The operation that you want to perform. Set the value to CancelTask.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the task. You can call the DescribeRegions operation to query the most recent region list.
TaskId	String	Yes	t-23ym6****	The ID of the task. You can call the DescribeTasks operation to query the list of task IDs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=CancelTask
&RegionId=cn-qingdao-env17-d01
&TaskId=t-23ym6mv****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CancelTaskResponse>
      <RequestId>4BE2C7FE-C7A4-4675-A153-174E032AABFB</RequestId>
</CancelTaskResponse>
```

`JSON` format

```
{
    "RequestId": "4BE2C7FE-C7A4-4675-A153-174E032AABFB"
}
```

Error codes

HTTP status code	Error code	Error message	Description
400	MissingParameter	An input parameter "RegionId" that is mandatory for processing the request is not supplied.	The error message returned because the RegionId parameter is not specified.
400	MissingParameter	An input parameter "TaskId" that is mandatory for processing the request is not supplied.	The error message returned because the TaskId parameter is not specified.
400	InvalidRegionId.NotFound	The specified RegionId does not exist.	The error message returned because the specified RegionId parameter does not exist.
400	InvalidTaskId.NotFound	The specified "TaskId" is not found.	The error message returned because the specified TaskId parameter does not exist.
403	InvalidTaskId.TaskActionNotSupport	The specified task action not support.	The error message returned because the specified task operation is not supported.
403	InvalidTaskId.IncorrectTaskStatus	The specified task status is not invalid.	The error message returned because the status of the specified task is invalid.

HTTP status code	Error code	Error message	Description
403	CancelTaskFailed	The task is failed to cancel, Please contact the administrator.	The error message returned because the task cannot be canceled. Contact the administrator.

2.1.2.1.18.4. JoinResourceGroup

You can call this operation to add an ECS resource or service to a resource group.

Description

A resource is a cloud service entity created in Apsara Stack, such as an ECS instance, elastic network interface (ENI), or ECS image. A resource group is a collection of infrastructure for projects, environments, or stacks. In a resource group, you can manage resources and monitor and run tasks in a centralized manner without switching between Apsara Stack services.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	JoinResourceGroup	The operation that you want to perform. Set the value to JoinResourceGroup.
ResourceType	String	No	securitygroup	The type of the ECS resource. Valid values: • instance: instance • disk: Block Storage device • snapshot: snapshot • image: image • securitygroup: security group • ddh: dedicated host • eni: elastic network interface (ENI) • keypair: SSH key pair • launchtemplate: launch template These values are case-sensitive.
ResourceId	String	No	sg-bp67acfmxazb4ph***	The ID of the resource. This parameter depends on ResourceType. For example, when ResourceType is set to instance, ResourceId can be interpreted as InstanceId.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-qingdao-env17-d01	The region ID of the ECS resource. You can call the DescribeRegions operation to query the most recent region list.
ResourceGroupId	String	No	rg-bp67acfmxazb4ph***	The ID of the resource group to which to add the resource.

Response parameters

Parameter	Type	Example	Description
RequestId	String	473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E	The ID of the request.

Examples

Sample requests

```
https://ecs.example.com/?Action=JoinResourceGroup
&RegionId=cn-qingdao-env17-d01
&RsourceType=securitygroup
&ResourceId=sg-bp67acfmxazb4ph***
&ResourceGroupId=rg-bp67acfmxazb4ph***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<JoinResourceGroupResponse>
      <RequestId>473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E</RequestId>
</JoinResourceGroupResponse>
```

`JSON` format

```
{
    "RequestId": "473469C7-AA6F-4DC5-B3DB-A3DC0DE3C83E"
}
```

Error codes

HTTP status code	Error code	Error message	Description
403	MissingParameter	The input parameter "ResourceId" that is mandatory for processing this request is not supplied.	The error message returned because the ResourceId parameter is not specified.
403	MissingParameter	The input parameter "ResourceGroupId" that is mandatory for processing this request is not supplied.	The error message returned because the ResourceGroupId parameter is not specified.
403	MissingParameter	The input parameter "RegionId" that is mandatory for processing this request is not supplied.	The error message returned because the RegionId parameter is not specified.
404	InvalidResourceType.NotFound	The ResourceType provided does not exist in our records.	The error message returned because the specified ResourceType parameter does not exist.
404	InvalidResourceGroup.NotFound	The ResourceGroup provided does not exist in our records.	The error message returned because the specified ResourceGroupId parameter does not exist.
404	InvalidResourceId.NotFound	The ResourceId provided does not exist in our records.	The error message returned because the specified ResourceId parameter does not exist.
403	InvalidResourceGroup.Duplicate	The ResourceId provided has a ResourceGroup in our records.	The error message returned because the specified resource has already been added to another resource group.

2.1.2.1.19. Appendix

2.1.2.1.19.1. Glossary

This topic describes the terms that you may encounter in ECS API operations.

Terms

Description

Term	Definition	Description
Instance	ECS instance, instance for short	An ECS instance is a virtual computer that is emulated on a physical server.

Term	Definition	Description
Region	Region	A region is the geographic location where resources are located. Each region contains a group of zones.
Zone	Zone	A zone is a physical area that operates an independent network and has its own power supply. The network latency is shorter for communication between ECS instances in the same zone. Zones within the same region can access each other, but faults which occur in one zone are isolated from other zones.
Image	Image file, image for short	An image file contains data for an operating system and applications. You can select an image to initialize an ECS instance. Before you create an instance, ensure that available images exist. All of the system disk contents of a newly created instance, including its OS and software configurations, are copied from the image. To create instances of different operating systems, you must select different image files.
Disk	Disk	A disk is the storage device used by an instance.
Snapshot	Snapshot	A snapshot is a backup copy of data on a disk for a certain point in time. A snapshot can be used to restore disk data and create custom images.
IP	IP address	A public IP address on the Internet.
SecurityGroup	Security group	A security group is a group of instances to which a set of security policies will be applied to. An instance must belong to at least one security group. The security policies of a security group apply to all instances in the group.
CIDR	Classless Inter-Domain Routing (CIDR)	CIDR is an Internet address allocation scheme. Compared with the Class A, B, and C addressing schemes, CIDR is much more efficient. For example, to convert the IP address segment 125.203.96.0 - 125.203.127.255 into CIDR format, find the same first 19 bits: 125.203.0110 0000.0000 0000 to 125.203.0111 1111.1111 1111, which can be represented in 125.203.96.0/19.

Limits

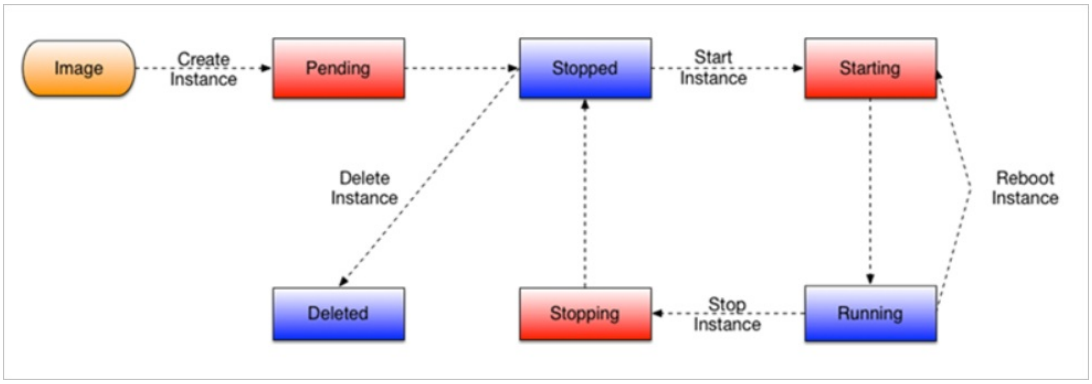
- In ECS, the number of instances, security groups, and other resources that can be used by each user is limited.
- Specifications such as the instance type, number of disks that can be mounted on each instance, disk capacity, and number of disk snapshots are also limited.

2.1.2.1.19.2. Instance statuses

Statuses

Status	Description
Pending	The instance is being created.
Stopped	The instance is stopped.
Starting	The instance is starting.
Running	The instance is running.
Stopping	The instance is being stopped.

Instance state diagram



2.1.2.1.19.3. Common errors

Error codes

Error code	HTTP status code	Error message
IdempotentParameterMismatch	400	The request is retried with updated parameters.
IllegalTimestamp	400	The input parameter "Timestamp" that is mandatory for processing this request is not supplied.
IncompleteSignature	400	The request signature does not conform to Aliyun standards.
InvalidAccessKeyId.NotFound	400	The Access Key ID provided does not exist in our records.
InvalidOwner	400	OwnerId and OwnerAccount can't be used at one API access.
InvalidOwnerId	400	The specified OwnerId is not valid.
InvalidOwnerAccount	400	The specified OwnerAccount is not valid.

Error code	HTTP status code	Error message
InvalidParamater	400	The specified parameter "SignatureMethod" is not valid.
InvalidParamater	400	The specified parameter "SignatureVersion" is not valid.
InvalidParameter	400	The specified parameter "Action or Version" is not valid.
InvalidParameter	400	The specified parameter is not valid.
InvalidParameter.IsNull	400	The required parameter must be not null.
MissingParameter	400	The input parameter "Action" that is mandatory for processing this request is not supplied.
MissingParameter	400	The input parameter "AccessKeyId" that is mandatory for processing this request is not supplied.
MissingParameter	400	An input parameter "Signature" that is mandatory for processing the request is not supplied.
MissingParameter	400	The input parameter "Timestamp" that is mandatory for processing this request is not supplied. supplied.
MissingParameter	400	The input parameter "Version" that is mandatory for processing this request is not supplied.
SignatureNonceUsed	400	The request signature nonce has been used.
Throttling	400	You have made too many requests within a short time; your request is denied due to request throttling.
UnsupportedParameter	400	The parameter is unsupported.
UnknownError	400	The request processing has failed due to some unknown error.
Forbidden.AccessKeyDisabled	403	The Access Key is disabled.
Forbidden.NotSupportRAM	403	This action does not support accessed by RAM mode.
Forbidden.RAM	403	User not authorized to operate the specified resource, or this API doesn't support RAM.

Error code	HTTP status code	Error message
Forbidden.RiskControl	403	This operation is forbidden by Aliyun Risk Control system.
Forbidden.SubUser	403	The specified action is not available for you.
Forbidden.Unauthorized	403	User not authorized to operate on the specified resource.
InvalidAccount.NotFound	403	The specified Account does not exist.
InvalidAction	403	The specified action is not valid.
InvalidIdempotenceParameter.Mismatch	403	The specified parameters are different from before.
InvalidParameter.OwnerAccount	403	OwnerAccount is Invalid.
InvalidParameter.ResourceOwnerAccount	403	ResourceOwnerAccount is Invalid.
LastTokenProcessing	403	The last token request is processing.
MissingParameter	403	The input parameter OwnerId, OwnerAccount that is mandatory for processing this request is not supplied.
RealNameAuthenticationError	403	Your account has not passed the real-name authentication yet.
UnsupportedHTTPMethod	403	This http method is not supported.
InvalidDiskId.NotFound	404	The specified DiskId does not exist.
InvalidImageId.NotFound	404	The specified ImageId does not exist.
InvalidInstanceId.NotFound	404	The specified InstanceId does not exist.
InvalidRegionId.NotFound	404	The specified RegionId does not exist.
InvalidSecurityGroupId.NotFound	404	The specified SecurityGroupId does not exist.
InvalidSnapshotId.NotFound	404	The specified SnapshotId does not exist.
OperationConflict	409	Request was denied due to conflict with a previous request.
InternalError	500	The request processing has failed due to some unknown error, exception or failure.
ServiceUnavailable	500	The request has failed due to a temporary failure of the server.

Error code	HTTP status code	Error message
ServiceUnavailable.RegionMaintaining	503	System maintenance is in progress on the selected region, please wait a few minutes before trying again.

2.1.2.1.19.4. Disk categories

Disk types

Disk type	Category	Maximum capacity of a disk
Basic disk	cloud	2,000 GiB
Ultra disk	cloud_efficiency	32,768 GiB
SSD disk	cloud_ssd	32,768 GiB

2.1.2.1.19.5. How to ensure idempotency

If a request timeout or internal server error occurs when you call CreateInstance to create an ECS instance, the client may attempt to resend the request. You can specify the ClientToken parameter to prevent the server from creating redundant instances in these cases. The ClientToken parameter ensures idempotency of the request.

A ClientToken is a unique and case-sensitive string generated by the client. It cannot exceed 64 ASCII characters in length.

If you use the same ClientToken for multiple CreateInstance operations, the server will return identical responses that contain the same InstanceId parameter. Therefore, if an error occurs during an instance creation request, you can retry the creation request using the same ClientToken as the failed request. This ensures that only one ECS instance is created and that it assigned to a specific InstanceId.

If you specify a ClientToken that is in use with different request parameters than previously used, ECS will return the IdempotentParameterMismatch error code. You must change the SignatureNonce, Timestamp, and Signature values when calling the operation again. This is because ECS uses SignatureNonce to prevent replay attacks and Timestamp to mark the time of each request. Each new request must have different SignatureNonce and Timestamp values, which changes the Signature value.

Typically, if a 500 (InternalError) or 503 (ServiceUnavailable) error code is returned or no responses are returned, you must retry operations. If an operation is retried after a response code of 200 is returned, an identical response will be returned but the server status will not be affected. If a 4xx error code is returned and *try it later* does not appear in the error message, attempts to retry the operation will fail.

2.1.2.1.19.6. API behavior when an instance is locked for security reasons

When OperationLocks in the DescribeInstances response contains LockReason: security for an instance, the instance is locked for security reasons.

If a disk on the instance is in the In_use state, the behavior of API operations related to the disk is subject to the OperationLocks settings of the instance. If the disk is in other states, the OperationLocks settings can be ignored.

Operations and behavior

Operation	Behavior
AttachDisk	Returns an error.
AuthorizeSecurityGroup	Is called and returns a response based on its normal logic.
CreateDisk	Is called and returns a response based on its normal logic.
CreateImage	Is called and returns a response based on its normal logic.
CreateInstance	-
CreateSecurityGroup	Is called and returns a response based on its normal logic.
CreateSnapshot	Returns an error when the disk is attached to the current instance and is in the **In_use** state.
DeleteDisk	Is called and returns a response based on its normal logic.
DeleteImage	Is called and returns a response based on its normal logic.
DeleteInstance	Is called and returns a response based on its normal logic.
DeleteSecurityGroup	Is called and returns a response based on its normal logic.
DeleteSnapshot	Is called and returns a response based on its normal logic.
DescribeAutoSnapshotPolicy	Is called and returns a response based on its normal logic.
DescribeDisks	Is called and returns a response based on its normal logic.
DescribeImages	Is called and returns a response based on its normal logic.
DescribeInstanceAttribute	Is called and returns a response based on its normal logic.
DescribeInstanceStatus	Is called and returns a response based on its normal logic.
DescribeInstanceTypes	Is called and returns a response based on its normal logic.
DescribeInstanceMonitorData	Is called and returns a response based on its normal logic.
DescribeRegions	Is called and returns a response based on its normal logic.
DescribeSecurityGroupAttribute	Is called and returns a response based on its normal logic.
DescribeSecurityGroups	Is called and returns a response based on its normal logic.
DescribeSnapshotAttribute	Is called and returns a response based on its normal logic.

Operation	Behavior
DescribeSnapshots	Is called and returns a response based on its normal logic.
DescribeZones	Is called and returns a response based on its normal logic.
DetachDisk	Returns an error.
JoinSecurityGroup	Returns an error.
LeaveSecurityGroup	Returns an error.
ModifyAutoSnapshotPolicy	Is called and returns a response based on its normal logic.
ModifyDiskAttribute	Is called and returns a response based on its normal logic.
ModifyInstanceAttribute	Returns an error.
RebootInstance	Returns an error.
ReInitDisk	Returns an error when the disk is attached to the current instance and is in the In_use state When the disk is attached to the current instance and is in other states, the operation is called and returns a response based on its normal logic.
ReplaceSystemDisk	Is called and returns a response based on its normal logic.
ResetDisk	Returns an error.
RevokeSecurityGroup	Is called and returns a response based on its normal logic.
StartInstance	Returns an error.
StopInstance	Returns an error.

2.1.2.1.19.7. ISO 8601 date and time formats

ISO 8601 Data elements and interchange formats – Information interchange – Representation of dates and times is an international standard covering the exchange of date- and time-related data. It was issued by the International Organization for Standardization (ISO). ECS open APIs adopt the ISO 8601 standard date and time formats.

3.Container Service for Kubernetes

3.1. Developer Guide

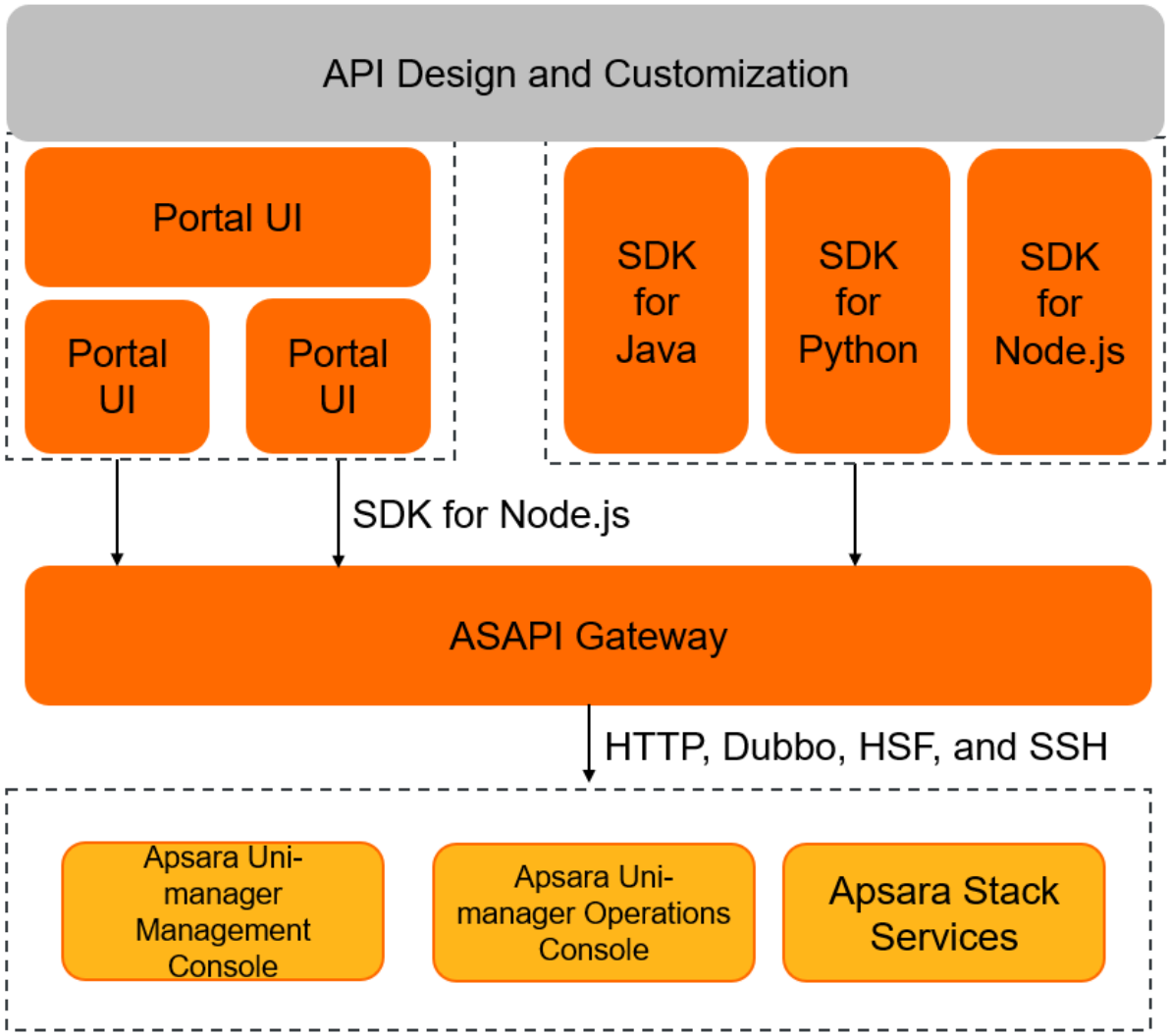
3.1.1. Use ASAPI to call the Apsara Stack SDK

3.1.1.1. 文档标题缺失，请补全后重新导出

3.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

3.1.1.1.2. Preparations

3.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

3.1.1.1.2.2. View information about API operations

This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

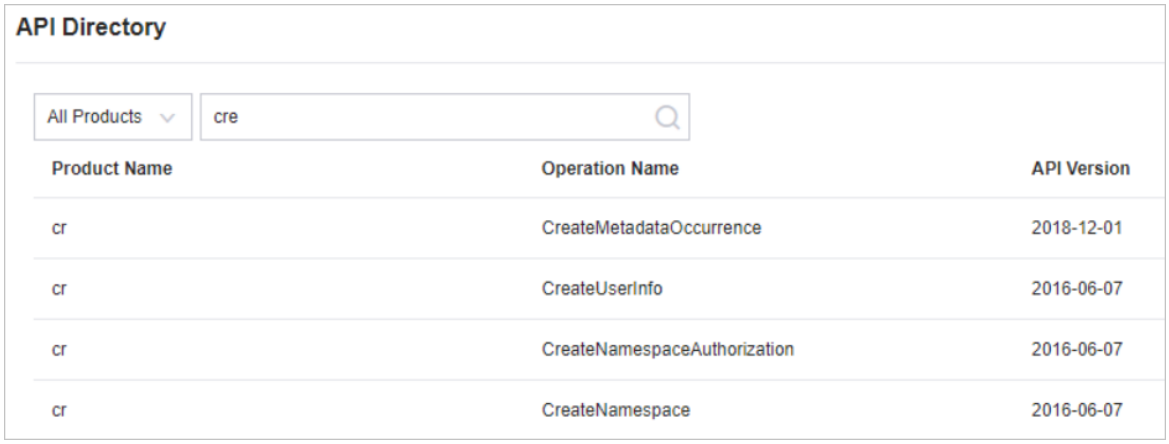
Context

The API operations on the API Directory page are only for reference. For information about how to call

API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



4. Then, you can view the service name, API operation name, and API operation version.

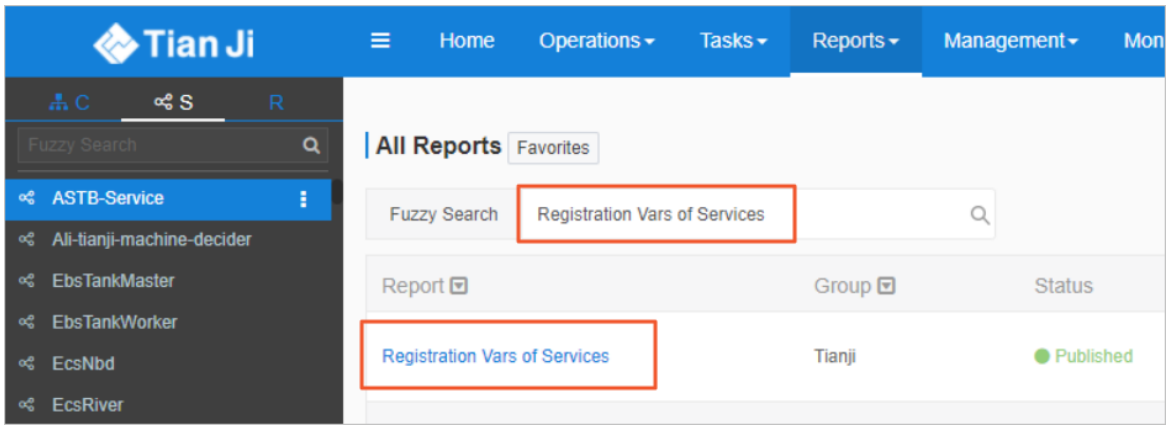
3.1.1.1.2.3. Generate an endpoint for the ASAPI

This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

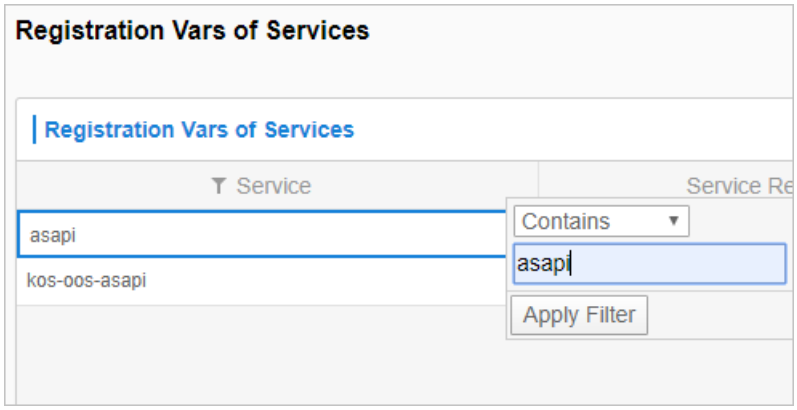
Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.

3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.

   In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

3.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

3.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

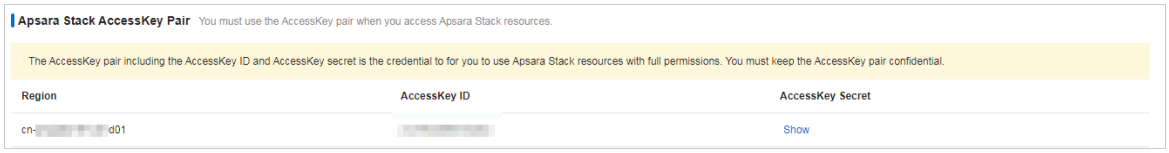
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

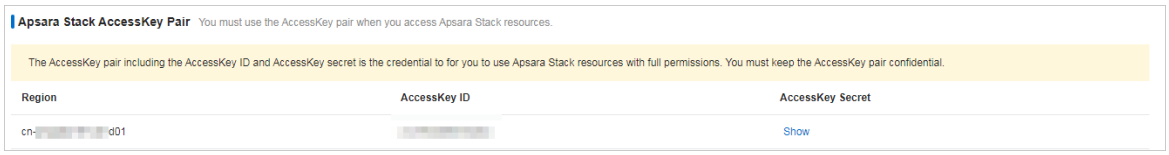
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

3.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



3.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

. .

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

> **Note**
>
> The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

3.1.1.1.4. SDK description

3.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an

AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

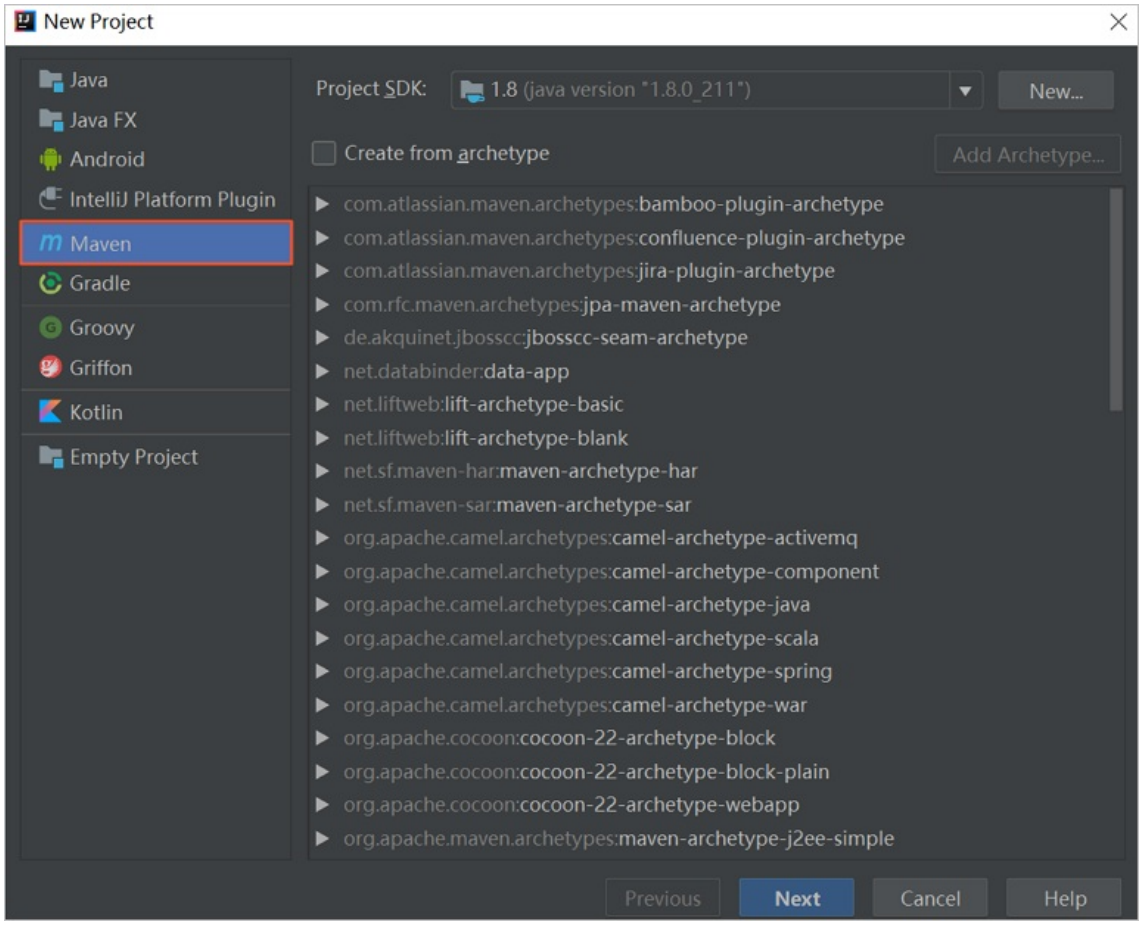
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

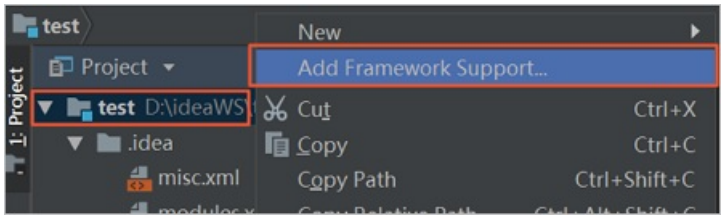
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

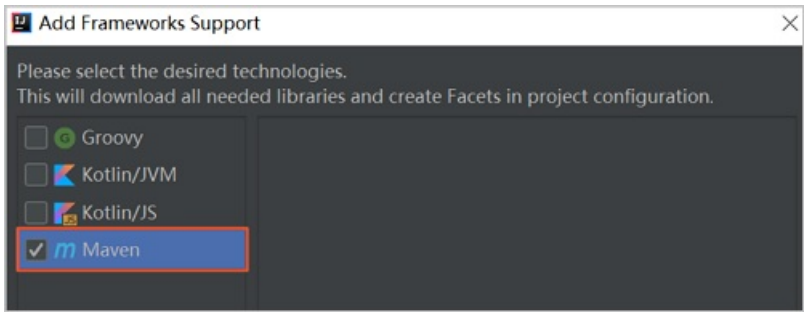
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



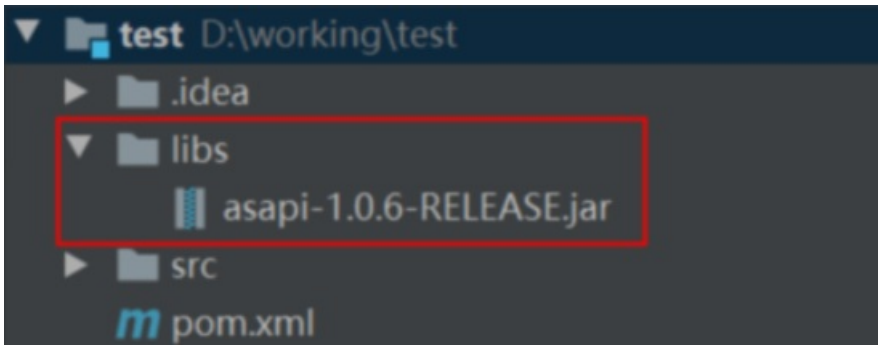
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



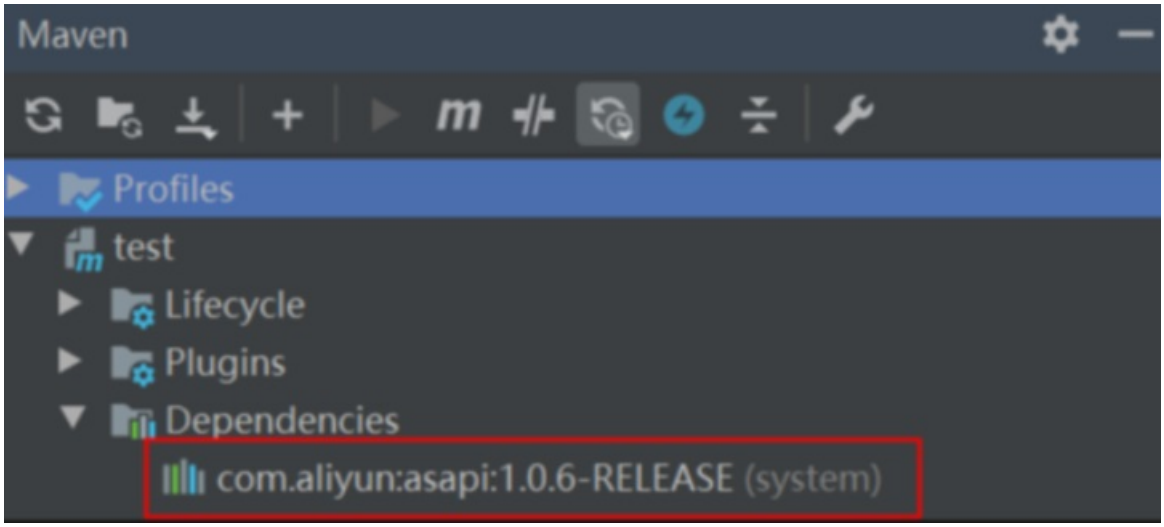
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

Note Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

   If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

3.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

3.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

3.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

3.1.1.1.5. HTTP requests

3.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

3.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

3.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20`, asterisks (`*`) with `%2A`, and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign`. You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign`. In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

3.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

3.1.2. Container Service API invocation

3.1.2.1. Overview

To use the APIs provided by Container Service, you can send HTTP requests to the endpoint of Container Service APIs and include specific parameters in the requests. The system returns a response after processing the request.

1. Common parameters

2. Request structure
3. Response parameters
4. Sign API requests

3.1.2.2. Common parameters

This topic lists the common request headers, common response headers, and common parameters that are required in Apsara Stack API (ASAPI) requests when you make Container Service API requests.

Common request headers

Common request parameters must be included in all Container Service API requests.

Parameter	Description	Required
Authorization	The authentication information that is used to check the authenticity of a request. The string must follow the `AccessKeyId:Signature` format.	Yes
Content-Length	The length of the HTTP request content. This length is specified in RFC 2616.	Yes
Content-Type	The type of HTTP request content. This type must follow the format that is specified in RFC 2616.	Yes
Content-MD5	The 128-bit MD5 hash value of the HTTP message body. The hash value is encoded in the Base64 format. We recommend that you set this parameter for all requests to prevent parameter tampering.	Yes
Date	The time when a request is created. The time must be in GMT. If the time between when the request is sent and when the request is received exceeds 15 minutes, the request is deemed invalid.	Yes
Host	The host to which the request is sent, for example, *diku.aliyuncs.com*.	Yes

Parameter	Description	Required
Accept	The type of response that is required by the client. Valid values: *application/json* and *application/xml*.	Yes
x-acs-version	The version number of the API. Set the value to *2015-12-15*.	Yes
x-acs-region-id	The region where the Elastic Compute Service (ECS) instance is deployed.	Yes
x-acs-signature-nonce	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.	Yes
x-acs-signature-method	The encryption method of the signature string. Set the value to *HMAC-SHA1*.	Yes

Examples

```
GET /clusters HTTP/1.1
Host: cs.aliyuncs.com
Accept: application/json
User-Agent: cs-sdk-python/0.0.1 (Darwin/15.2.0/x86_64;2.7.10)
x-acs-signature-nonce: f63659d4-10ac-483b-99da-ea8fde61eae3
Authorization: acs <yourAccessKeyId>:<yourSignature>
x-acs-signature-version: 1.0
Date: Wed, 16 Dec 2015 11:18:47 GMT
x-acs-signature-method: HMAC-SHA1
Content-Type: application/json;charset=utf-8
X-Acs-Region-Id: cn-beijing
Content-Length: 0
```

Common parameters required in ASAPI requests

Additional common parameters are required when you make ASAPI requests. The following table lists these common parameters.

Parameter	Description	Required
x-ascm-product-ak	The AccessKey pair. You can check your AccessKey pair in the Alibaba Cloud Management Console.	Yes
x-ascm-product-name	The name of the service that supports the API. Set the value to cs for Container Service.	Yes

Parameter	Description	Required
x-ascm-product-version	The version number of the API. Set the value to 2015-12-15.	Yes
x-acs-regionid	The ID of the region where the Container Service cluster is deployed.	Yes
x-acs-organizationid	The ID of the organization to which the Container Service cluster belongs.	Yes
x-acs-resourceGroupId	The ID of the resource set of the Container Service cluster.	Yes
x-acs-roleid	The ID of the role.	Yes

Common response parameters

Every response returns a unique request ID regardless of whether the call is successful.

Examples

XML format:

```
<? xml version="1.0" encoding="UTF-8"? >
<!—Result Root Node-->
<Interface Name + Response>
 | <! -Returned Request Tag -->
 | <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
 | <! -Return Result Data -->
<Interface Name+Response>
```

JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216"
    /* Return Result Data */
}
```

3.1.2.3. Request syntax

This topic describes the syntax that you must follow when you make Container Service API requests.

Endpoint

- The endpoints of the API operations are classified into the following types:
  - Primary region: `cs.${global:internet-domain}`
  - Secondary region: `cs.${global:region}.${global:internet-domain}`

- You must add the */roa* prefix to the endpoint that you use to make an Apsara Stack API (ASAPI) request. For example, if the */clusters* endpoint is used to create a cluster, you must include */roa/clusters* in your ASAPI request.

Protocols

HTTP and HTTPS are supported. We recommend that you send requests over HTTPS to enhance security.

Request methods

The following HTTP methods are supported: PUT, POST, GET, and DELETE.

Request parameters

Each request must contain common request parameters and parameters unique to specific operations.

Request encoding

All requests and responses are encoded in the UTF-8 format.

3.1.2.4. Response parameters

The response data is returned in a unified format. If status code `2xx` is returned, it indicates that the API call is successful. If status code `4xx` or `5xx` is returned, it indicates that the API call has failed. For successful API calls, response data is returned in XML or JSON format. You can pass a parameter to specify the format when you call the API. The default format is XML.

The following example is formatted for readability. The actual result is not formatted with line feeds or indentation.

3.1.2.5. Sign API requests

This topic describes how to sign API requests to protect Container Service from unauthorized access.

Introduction

Apsara Stack issues an AccessKey pair to each Apsara Stack tenant account. Each AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user. The AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret confidential. You can obtain and manage the AccessKey pair in the Apsara Uni-manager Management Console.

Container Service verifies every request it receives. All requests to Container Service must contain signature information. Container Service implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. Container Service accepts only requests that are validated by verification codes. Invalid requests are rejected and the HTTP status code 403 is returned.

You can add the Authorization header to every HTTP request and include the signature in the header.

You must add the signature to the Authorization header in the following format: `Authorization: acs [Access Key Id]:[Signature]` .

The `Signature` is calculated based on the following rules:

```
Signature = base64(hmac-sha1(VERB + "\n"
            + ACCEPT + "\n"
            + Content-MD5 + "\n"
            + Content-Type + "\n"
            + Date + "\n"
            + CanonicalizedHeaders + "\n"
            + CanonicalizedResource))
```

- `VERB` indicates the HTTP method. Example: `PUT`.
- `ACCEPT` specifies the type of response that is required by the client. Valid values: application/json and application/xml.
- `Content-MD5` indicates the MD5 hash value of the request content.
- `Content-Type` indicates the type of request content.
- `Date` indicates the time when the request was sent. This parameter is required. The time must be in GMT. If the time between when the request was sent and when the request was received exceeds 15 minutes, the request is deemed invalid and the HTTP status code 400 is returned. For example, `Thu, 17 Mar 2012 18:49:58 GMT` can be used.
- `CanonicalizedHeaders` indicates the header fields that are prefixed with `x-acs-` in the request.
- `CanonicalizedResource` indicates the URI of the requested resource. For example, `/clusters? name=my-clusters&resource=new` can be used.

`CanonicalizedHeaders` (headers that start with `x-acs-`) must comply with the following specifications before the signature is verified:

1. Convert the names of all HTTP request headers prefixed with `x-acs-` to lowercase letters. For example, you must convert `X-ACS-Meta-Name: TaoBao` into `x-acs-meta-name: TaoBao`. Header field names are case-insensitive. We recommend that you use lowercase letters.
2. If a header field value is too long, replace specific delimiters with spaces. The delimiters include `\t`, `\n`, `\r`, and `\f`.
3. Sort all HTTP request headers that are obtained from the preceding step in alphabetical order.
4. Delete spaces from each side of a delimiter between the request header and its content. For example, convert `x-acs-meta-name: TaoBao,Alipay` into `x-acs-meta-name:TaoBao,Alipay`.
5. Separate all headers and content with delimiters (`\n`) to form the final canonicalized headers.

> **Note** `CanonicalizedResource` must follow this format: `CanonicalizedResource` specifies the URIs of the requested resources. You must sort sub-resources in alphabetical order and combine them with the `&` delimiter to form a string. In the following example, the string that follows the question mark (`?`) indicates CanonicalizedResource.

```
http://cs.aliyuncs.com/clusters?name=my-clusters&resource=new
```

The value of `CanonicalizedResource` must be in the following format:

```
/clusters? name=my-clusters&resource=new
```

Example

Overview

The following example shows how to sign an API request.

The `access_key_id` and `access_key_secret` fields separately specify the AccessKey ID and AccessKey secret that are used in the example. We recommend that you use your own program to construct an API request. You can then calculate the signature that is used in the following example.

Sample request:

```
POST http://cs.aliyuncs.com/clusters?param1=value1&param2=value2 HTTP/1.1
Accept-Encoding: identity
Content-Length: 210
Content-MD5: 6U4ALMkKSj0PYbeQSHqgmA==
x-acs-version: 2015-12-15
Accept: application/json
User-Agent: cs-sdk-python/0.0.1 (Darwin/15.2.0/x86_64;2.7.10)
x-acs-signature-nonce: fbf6909a-93a5-45d3-8b1c-3e03a7916799
x-acs-signature-version: 1.0
Date: Wed, 16 Dec 2015 12:20:18 GMT
x-acs-signature-method: HMAC-SHA1
Content-Type: application/json;charset=utf-8
X-Acs-Region-Id: cn-beijing
Authorization: acs <yourAccessKeyId>:<yourSignature>
{"password": "Just$****","instance_type": "ecs.m2.medium","name": "my-test-cluster-9708****
","size": 1,"network_mode": "vpc","data_disk_category": "cloud","data_disk_size": 10,"ecs_i
mage_id": "m-253l****l"}
```

Construct the request

Calculate the values of `Content-Length` and `Content-MD5`.

`Content-Length` specifies the length of the content body.

> **Note** The body cannot start with a space or line feed.

```
body: {"password": "Just$****","instance_type": "ecs.m2.medium","name": "my-test-cluster-97
08****","size": 1,"network_mode": "vpc","data_disk_category": "cloud","data_disk_size": 10,
"ecs_image_id": "m-253ll****"}
Content-Length: 210
```

`Content-MD5`: The MD5 value is calculated based on the following rules:

```
body: {"password": "Just$****","instance_type": "ecs.m2.medium","name": "my-test-cluster-97
08****","size": 1,"network_mode": "vpc","data_disk_category": "cloud","data_disk_size": 10,
"ecs_image_id": "m-253ll****"}
# Calculate the MD5 value of the body
md5(body): e94e002cc90a4a3d0f61b790487aa098
# Convert the MD5 hash value into a byte array. Convert every two hexadecimal digits into o
ne byte.
# Example: e9 -> 11111111111111111111111111101001 -> -23
bytes(md5(body)): {[-23], [78], [0], [44], [-55], [10], [74], [61], [15], [97], [-73], [-11
2], [72], [122], [-96], [-104]}
# Convert the byte array into a string that is encoded in the Base64 format.
base64(bytes(md5(body))): 6U4ALMkKSj0PYbeQSHqgmA==
Content-MD5: 6U4ALMkKSj0PYbeQSHqgmA==
```

Process `CanonicalizedHeaders`

```
# List all header fields prefixed with 'x-acs-'
x-acs-version: 2015-12-15
x-acs-signature-nonce: ca480402-7689-43ba-acc4-4d2013d9d8d4
x-acs-signature-version: 1.0
x-acs-signature-method: HMAC-SHA1
X-Acs-Region-Id: cn-beijing
# Convert the header field name to lowercase, delete the spaces at the start and end of eac
h line, and sort the header fields in lexicographical order. Delete spaces from each side o
f a delimiter between the request header and its content.
# Note: No line feed in the last line.
x-acs-region-id:cn-beijing
x-acs-signature-method:HMAC-SHA1
x-acs-signature-nonce:fbf6909a-93a5-45d3-8b1c-3e03a7916799
x-acs-signature-version:1.0
x-acs-version:2015-12-15
```

Calculate `CanonicalizedResource`

In this example, the length of the `CanonicalizedResource` field value is 27 bytes.

Note A line feed `\n` exists at the end of the first line.

```
/clusters? param1=value1&param2=value2
```

Calculate `Signature`

Construct the value of `SignatureString`. In this example, the length of the signature string is 307 bytes. Apart from the last line, each line has a line feed `\n` at the end.

```
POST
application/json
6U4ALMkKSj0PYbeQSHqgmA==
application/json;charset=utf-8
Wed, 16 Dec 2015 12:20:18 GMT
x-acs-region-id:cn-beijing
x-acs-signature-method:HMAC-SHA1
x-acs-signature-nonce:fbf6909a-93a5-45d3-8b1c-3e03a7916799
x-acs-signature-version:1.0
x-acs-version:2015-12-15
/clusters? param1=value1&param2=value2
```

Calculate `Signature` base on the following rules:

```
# Use the AccessKey secret to encrypt the value of SignatureString. In this example, access
_key_secret specifies the AccessKey secret.
hmac-sha1(SignatureString): fee03d405e421ebaf514adec881038c4b313584d
#  Convert the encrypted string into a byte array, which is similar to calculating Content-
MD5.
# Convert the byte array into a string that is encoded in the Base64 format. The output is
the signature string.
base64(bytes(hmac-sha1(SignatureString))): ZmVlMDNkNDA1ZTQyMWViYWY1MTRhZGVjODgxMDM4YzRiMzEz
NTg0ZA==
Signature: ZmVlMDNkNDA1ZTQyMWViYWY1MTRhZGVjODgxMDM4YzRiMzEzNTg0ZA==
```

The signature string is calculated.

Add other header fields to your request and set the value of Signature to the calculated signature string. The following sample code shows the signed API request.

```
POST http://cs.aliyuncs.com/clusters?param1=value1&param2=value2 HTTP/1.1
Accept-Encoding: identity
Content-Length: 210
Content-MD5: 6U4ALMkKSj0PYbeQSHqgmA==
x-acs-version: 2015-12-15
Accept: application/json
User-Agent: cs-sdk-python/0.0.1 (Darwin/15.2.0/x86_64;2.7.10)
x-acs-signature-nonce: fbf6909a-93a5-45d3-8b1c-3e03a7916799
x-acs-signature-version: 1.0
Date: Wed, 16 Dec 2015 12:20:18 GMT
x-acs-signature-method: HMAC-SHA1
Content-Type: application/json;charset=utf-8
X-Acs-Region-Id: cn-beijing
Authorization: acs <yourAccessKeyId>:<yourSignature>
{"password": "Just$****","instance_type": "ecs.m2.medium","name": "my-test-cluster-9708****
","size": 1,"network_mode": "vpc","data_disk_category": "cloud","data_disk_size": 10,"ecs_i
mage_id": "m-253ll****"}
```

3.1.3. Cluster API list

3.1.3.1. Clusters

3.1.3.1.1. CreateCluster

Creates a standard dedicated Kubernetes cluster.

Request syntax

```
POST /clusters HTTP/1.1
Content-Type:application/json
{
  "name" : "String",
  "region_id" : "String",
  "cluster_type" : "String",
  "kubernetes_version" : "String",
  "runtime" : {
    "name" : "String",
    "version" : "String"
  },
  "vpcid" : "String",
  "container_cidr" : "String",
  "service_cidr" : "String",
  "security_group_id" : "String",
  "is_enterprise_security_group" : Boolean,
  "snat_entry" : Boolean,
  "endpoint_public_access" : Boolean,
  "ssh_flags" : Boolean,
  "timezone" : "String",
  "node_cidr_mask" : "String",
  "user_ca" : "String",
  "user_data" : "String",
  "cluster_domain" : "String",
  "tags" : [ {
    "key" : "String",
    "value" : "String"
  } ],
  "addons" : [ {
    "name" : "String",
    "config" : "String",
    "disabled" : Boolean
  } ],
  "taints" : [ {
    "key" : "String",
    "value" : "String",
    "effect" : "String"
  } ],
  "cloud_monitor_flags" : Boolean,
  "platform" : "String",
  "os_type" : "String",
  "cpu_policy" : "String",
  "proxy_mode" : "String",
  "node_port_range" : "String",
  "login_password" : "String",
```

```
  "master_count" : Long,
  "master_vswitch_ids" : [ "String" ],
  "master_instance_types" : [ "String" ],
  "master_system_disk_category" : "String",
  "master_system_disk_size" : Long,
  "num_of_nodes" : Long,
  "vswitch_ids" : [ "String" ],
  "worker_vswitch_ids" : [ "String" ],
  "worker_instance_types" : [ "String" ],
  "worker_system_disk_category" : "String",
  "worker_system_disk_size" : Long,
  "worker_data_disks" : [ {
    "category" : "String",
    "size" : Long,
    "encrypted" : "String",
    "auto_snapshot_policy_id" : "String"
  } ],
  "instances" : [ "String" ],
  "format_disk" : Boolean,
  "keep_instance_name" : Boolean,
  "deletion_protection" : Boolean,
  "disable_rollback" : Boolean,
  "timeout_mins" : Long
}
```

Request parameters

Request body parameters

Parameter	Type	Required	Example	Description
name	String	Yes	cluster-demo	The name of the cluster. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
region_id	String	Yes	cn-beijing	The ID of the region where you want to deploy the cluster.
cluster_type	String	Yes	Kubernetes	The type of cluster. Valid values: • `Kubernetes`: dedicated Kubernetes cluster. • `ManagedKubernetes`: managed edge Kubernetes cluster.

Parameter	Type	Required	Example	Description
kubernetes_version	String	No	1.16.9-aliyun.1	The version of the cluster. The cluster versions provided by Container Service are consistent with the open source versions. We recommend that you select the latest version. If you do not specify this parameter, the latest version is used. You can create clusters of the latest two versions in the Container Service console. You can create clusters of earlier versions by calling API operations.
runtime	runtime	No	{"name": "docker", "version": "19.03.5"}	The container runtime of the cluster. The following runtimes are supported: `containerd`, `Docker`, and `Sandboxed-Container`. The default runtime is `Docker`. You must specify the name and version of the container runtime. • `name`: the name of the container runtime. • `version`: the version of the container runtime.
vpcid	String	Yes	vpc-2zeik9h3ahvv2zz95****	The virtual private cloud (VPC) where the cluster is deployed. You must specify a VPC when you create the cluster.
container_cidr	String	Yes	172.20.0.0/16	The CIDR block of pods. This CIDR block cannot overlap with the CIDR block of the VPC where the cluster is deployed. If the VPC is automatically created by the system, the CIDR block of pods is set to 172.16.0.0/16 by default. **Notice** • This parameter is required if the cluster uses the Flannel plug-in. • This parameter is not required if the cluster uses the Terway plug-in.

Parameter	Type	Required	Example	Description
service_cidr	String	Yes	172.21.0.0/20	The CIDR block of Services. Valid values: 10.0.0.0/16-24, 172.16-31.0.0/16-24, and 192.168.0.0/16-24. The CIDR block of Services cannot overlap with the CIDR block of the VPC (10.1.0.0/21) or the CIDR blocks of existing clusters in the VPC. You cannot modify the CIDR block of Services after the cluster is created. By default, the CIDR block of Services is set to 172.19.0.0/20.
is_enterprise_security_group	Boolean	No	true	Specifies whether to create an advanced security group. This parameter takes effect only if `security_group_id` is left empty. **Note** To use a basic security group, make sure that the sum of the number of nodes in the cluster plus the number of pods that use Terway does not exceed 2,000. Therefore, we recommend that you specify an advanced security group for a cluster that has Terway installed. • `true`: creates an advanced security group. • `false`: does not create an advanced security group. Default value: `true`.

Parameter	Type	Required	Example	Description
snat_entry	Boolean	No	true	Specifies whether to configure Source Network Address Translation (SNAT) rules for the VPC where your cluster is deployed. Valid values: • true: automatically creates a Network Address Translation (NAT) gateway and configures SNAT rules. Set this parameter to `true` if nodes and applications in the cluster need to access the Internet. • false: does not create a NAT gateway or configure SNAT rules. In this case, nodes and applications in the cluster cannot access the Internet. Default value: true.
endpoint_public_access	Boolean	No	true	Specifies whether to enable Internet access for the cluster. You can use an elastic IP address (EIP) to expose the API server. This way, you can access the cluster over the Internet. • `true`: enables Internet access. • `false`: disables Internet access. If you set this parameter to false, the API server cannot be accessed over the Internet. Default value: `false`.
ssh_flags	Boolean	No	true	Specifies whether to enable Secure Shell (SSH) logon over the Internet. • `true`: enables SSH logon over the Internet. • `false`: disables SSH logon over the Internet. Default value: `false`.
node_cidr_mask	String	No	25	The maximum number of IP addresses that can be assigned to nodes. This number is determined by the specified pod CIDR block. This parameter takes effect only if the cluster uses the Flannel plug-in. Default value: `26`.

Parameter	Type	Required	Example	Description
user_ca	String	No	-----BEGIN CERTIFICATE----- ****	The custom Certificate Authority (CA) certificate for the cluster.
user_data	String	No	IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFD****	The user-defined data of the node. For more information, see the *User-defined data* chapter in the *Elastic Compute Service (ECS)* documentation.
cluster_domain	String	No	cluster.local	The domain name of the cluster. The domain name consists of one or more parts that are separated with periods (.).Each part cannot exceed 63 characters in length, and can contain lowercase letters, digits, and hyphens (-). Each part must start and end with a lowercase letter or digit.
image_id	String	No	m-bp16z7xko3vvv8gt****	Specifies a custom image for nodes. By default, the system image is used. You can select a custom image to replace the default image.
tags	Array of tag	No		The labels to be added to nodes. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with aliyun, acs:, https://, or http://.
				The list of add-ons to be installed. When you create a cluster, you can set the `addons` parameter to install specific add-ons. **Network plug-in**: required. Supported network plug-ins are Flannel and Terway. Select one of the plug-ins for the cluster. • Specify the Flannel plug-in in the

Parameter	Type	Required	Example	Description
addons	Array of addon	No		following format: [{"name":"flannel","config":""}]. • Specify the Terway plug-in in the following format: [{"name": "terway-eniip","config": ""}]. **Volume plug-in**: required. Supported volume plug-ins are `CSI` and `FlexVolume`. • Specify the `CSI` plug-in in the following format: [{"name":"csi-plugin","config": ""},{"name": "csi-provisioner","config": ""}]. • Specify the `FlexVolume` plug-in in the following format: [{"name": "flexvolume","config": ""}]. **Log Service component**: optional. We recommend that you enable Log Service. If Log Service is disabled, you cannot use the cluster auditing feature. • To use an existing `Log Service project`, specify the component in the following format: [{"name": "logtail-ds","config": "{\"IngressDashboardEnabled\":\"true\",\"sls_project_name\":\"your_sls_project_name\"}"}]. • To create a `Log Service project`, specify the component in the following format: [{"name": "logtail-ds","config": "{\"IngressDashboardEnabled\":\"true\"}"}]. **Ingress controller**: optional. By default, the `nginx-ingress-controller` component is installed for dedicated Kubernetes clusters. • To install nginx-ingress-controller and enable Internet access, specify the component in the following format: [{"name":"nginx-ingress-controller","config":"{\"IngressSlbNetworkType\":\"internet\"}"}]. • To disable the automatic installation of nginx-ingress-controller, specify the component in the following format: [{"name": "nginx-ingress-controller","config": "","disabled": true}]. **Event center**: optional. By default, the event center feature is enabled.

Parameter	Type	Required	Example	Description
				The event center feature allows you to log Kubernetes events, query events, and configure alerts for the events. Logstores that are associated with the Kubernetes event center are free of charge for the first 90 days. Enable the ack-node-problem-detector component in the following format: [{"name":"ack-node-problem-detector","config":"{\"sls_project_name\":\"your_sls_project_name\"}"}].
taints	Array of taint	No		The taints to be added to nodes. Taints are added to nodes to prevent pods from being scheduled to inappropriate nodes. However, toleration rules allow pods to be scheduled to nodes with matching taints.
cloud_monitor_flags	Boolean	No	true	Specifies whether to install the CloudMonitor agent. Valid values: • `true`: installs the CloudMonitor agent. • `false`: does not install the CloudMonitor agent. Default value: `false`.
platform	String	No	CentOS	The release version of the operating system. Valid values: • CentOS • AliyunLinux • QbootAliyunLinux • Qboot • Windows • WindowsCore Default value: `AliyunLinux`.
os_type	String	No	Linux	The type of operating system. Valid values: • Windows • Linux Default value: `Linux`.

Parameter	Type	Required	Example	Description
cpu_policy	String	No	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used. Default value: `none`.
proxy_mode	String	No	ipvs	The kube-proxy mode. • `iptables`: iptables is a kube-proxy mode. It uses iptables rules to conduct Service discovery and load balancing. The performance of this mode is limited by the size of the cluster. This mode is suitable for clusters that run a small number of Services. • `IPVS` is a high-performance kube-proxy mode. It uses Linux IP Virtual Server (IPVS) to conduct Service discovery and load balancing. This mode is suitable for clusters that run a large number of Services. We recommend that you use this mode in scenarios where high-performance load balancing is required. Default value: `ipvs`.
node_port_range	String	No	30000~32767	The node port range. Valid values: 30000 to 65535. Default value: `30000-32767`.
login_password	String	Yes	Hello@1234	The password for SSH logon. You must set this parameter or the `key_pair` parameter. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters.

Parameter	Type	Required	Example	Description
master_count	Long	No	3	The number of master nodes to be created. Valid values: `3` and `5`. Default value: `3`.
master_vswitch_ids	Array of String	Yes	vsw-2ze3ds0mdip0hdz8i****	The IDs of vSwitches.
master_instance_types	Array of String	Yes	ecs.n4.xlarge	The instance types of master nodes. For more information, see the *Instance types* chapter of *ECS User Guide*.
master_system_disk_category	String	Yes	cloud_ssd	The type of system disk that is specified for master nodes. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD. • `cloud_essd`: enhanced SSD. Default value: `cloud_ssd`. The default value may vary in different zones.
master_system_disk_size	Long	Yes	120	The size of the system disk that is specified for master nodes. Valid values: 40 to 500. Unit: GiB. Default value: `120`.
num_of_nodes	Long	Yes	3	The number of worker nodes to be created. Valid values: 0 to 100.
worker_vswitch_ids	Array of String	Yes	vsw-2ze3ds0mdip0hdz8i****	The list of vSwitch IDs. You can specify 1 to 20 vSwitches. We recommend that you select vSwitches in different zones to ensure high availability.

Parameter	Type	Required	Example	Description
worker_instance_types	Array of String	Yes	ecs.n4.large	The instance types of worker nodes. You must specify at least one instance type. For more information, see the *Instance types* chapter of *ECS User Guide*. **Note** The instance types are listed in descending order of priority. If worker nodes fail to be created based on the instance type of the highest priority, the system attempts to create worker nodes by using the instance type of the next highest priority.
worker_system_disk_category	String	Yes	cloud_efficiency	The type of system disk that is specified for worker nodes. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD. Default value: `cloud_ssd`.
worker_system_disk_size	Long	Yes	120	The size of the system disk that is specified for worker nodes. Unit: GiB. Valid values: 40 to 500. The value of this parameter must be at least 40 and greater than or equal to the size of the image. Default value: 120.
worker_data_disks	Array	No		The configurations of data disks that are mounted to worker nodes. Each configuration includes disk type and disk size.
instances	Array of String	No	i-2ze4zxnm36vq00xn****	The names of instances.

Parameter	Type	Required	Example	Description
format_disk	Boolean	No	false	Specifies whether to mount a data disk to nodes that are created on existing ECS instances. Valid values: • `true`: stores the data of containers and images on a data disk. The original data on the disk will be overwritten. Back up data before you mount the disk. • `false`: does not store the data of containers and images on a data disk. Default value: `false`. How to mount a data disk: • If the ECS instances have data disks mounted and the file system of the last data disk is not initialized, the system automatically formats the data disk to ext4. Then, the system mounts the data disk to /var/lib/docker and /var/lib/kubelet. • The system does not create and mount a new data disk if no data disk has been mounted to the ECS instances.
keep_instance_name	Boolean	No	true	Specifies whether to retain the names of existing ECS instances that are used in the cluster. • `true`: retains the names. • `false`: does not retain the names. The new names are assigned by the system. Default value: `true`.

Parameter	Type	Required	Example	Description
deletion_protection	Boolean	No	true	Specifies whether to enable deletion protection for the cluster. After deletion protection is enabled, the cluster cannot be deleted in the console or by calling API operations. Valid values: • `true`: enables deletion protection for the cluster. This way, the cluster cannot be deleted in the console or by calling API operations. • `false`: disables deletion protection for the cluster. This way, the cluster can be deleted in the console or by calling API operations. Default value: `false`.
disable_rollback	Boolean	No	true	Specifies whether to perform a rollback when the cluster fails to be created. Valid values: • `true`: performs a rollback when the cluster fails to be created. • `false`: does not perform a rollback when the cluster fails to be created. Default value: `true`.
timeout_mins	Long	No	60	Specifies the timeout period of cluster creation. Unit: minutes. Default value: `60`.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "cluster_id" : "String",
  "request_id" : "String",
  "task_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
cluster_id	String	cb95aa626a47740afbf6aa099b650****	The ID of the cluster.
request_id	String	687C5BAA-D103-4993-884B-C35E4314A1E1	The ID of the request.
task_id	String	T-5a54309c80282e39ea00002f	The ID of the task.

Examples

Sample requests

```
POST /clusters
{
    "cluster_type":"Kubernetes",
    "name":"dedicated Kubernetes cluster",
    "region_id":"cn-zhangjiakou",
    "disable_rollback":true,
    "timeout_mins":60,
    "kubernetes_version":"1.18.8-aliyun.1",
    "snat_entry":true,
    "endpoint_public_access":true,
    "ssh_flags":true,               // Specifies whether master nodes in the cluster can be
accessed by using SSH.
    "cloud_monitor_flags":true,
    "deletion_protection":true,
    "node_cidr_mask":"26",
    "user_ca":"-----BEGIN CERTIFICATE-----\n***", // The custom CA certificate.
    "proxy_mode":"ipvs",
    "timezone":"Asia/Shanghai",
    "tags":[
        {
            "key":"tag-k",
            "value":"tag-v"
        }
    ],
    "addons":[
        {
            "name":"flannel"
        },
        {
            "name":"arms-prometheus"
        },
        {
            "name":"csi-plugin"
        },
        {
            "name":"csi-provisioner"
        },
```

```
        {
            "name":"logtail-ds",
            "config":"{"IngressDashboardEnabled":"true"}"
        },
        {
            "name":"ack-node-problem-detector",
            "config":"{"sls_project_name":""}"
        },
        {
            "name":"nginx-ingress-controller",
            "config":"{"IngressSlbNetworkType":"internet"}"
        }
    ],
    "os_type":"Linux",
    "platform":"AliyunLinux",
    "user_data":"IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFDSyEi",
    "node_port_range":"30000-32767",      // The node port range. Valid values: 30000 to 65
535.
    "login_password":"Hello1234",
    "worker_auto_renew":true,
    "worker_auto_renew_period":1,
    "cpu_policy":"none",
    "cluster_domain":"cluster.local",
    "api_audiences":"kubernetes.default.svc",
    "taints":[
        {
            "key":"key",
            "value":"value",
            "effect":"NoSchedule"
        }
    ],
    "master_count":3,                 // The number of master nodes. Valid values: 3 and 5.
    "master_vswitch_ids":[            // The IDs of the vSwitches that are specified for ma
ster nodes.
        "vsw-8vbmoffowsztjaawjtyzo",
        "vsw-8vbmoffowsztjaawjtyzo",
        "vsw-8vbmoffowsztjaawjtyzo"
    ],
    "master_instance_types":[         // The instance types of master nodes.
        "ecs.c6.large",
        "ecs.c6.large",
        "ecs.c6.large"
    ],
    "master_system_disk_category":"cloud_essd",   // The type of system disk that is specif
ied for master nodes.
    "master_system_disk_size":120,                // The size of the system disk that is sp
ecified for master nodes. Valid values: 40 to 500.
    "runtime":{
        "name":"docker",
        "version":"19.03.5"
    },
    "worker_instance_types":[
        "ecs.g5.large"
    ],
```

```
    "num_of_nodes":3,
    "worker_system_disk_category":"cloud_essd",
    "worker_system_disk_size":120,
    "worker_system_disk_performance_level":"PL1",
    "vpcid":"vpc-8vbh3b9a2f38urhlsw9jh",
    "worker_vswitch_ids":[
        "vsw-8vbmoffowsztjaawjtyzo"
    ],
    "security_group_id":"sg-8vb7grbyvlb10j0ih46n",
    "is_enterprise_security_group":true,
    "container_cidr":"172.20.0.0/16",
    "service_cidr":"172.21.0.0/20",
    "image_id":"CentOS-xxx",
    "instances": [
        "i-dewgagxdfa****",
        "i-3kjaf9q43l****"
    ],
    "format_disk": false,
    "keep_instance_name": true
}
```

Sample success responses

`XML` format

```
<cluster_id>cb95aa626a47740afbf6aa099b650****</cluster_id>
<task_id>T-5a54309c80282e39ea00002f</task_id>
<request_id>687C5BAA-D103-4993-884B-C35E4314A1E1</request_id>
```

`JSON` format

```
{
    "cluster_id": "cb95aa626a47740afbf6aa099b650****",
    "task_id": "T-5a54309c80282e39ea00002f",
    "request_id": "687C5BAA-D103-4993-884B-C35E4314A1E1"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.2. ScaleOutCluster

Adds worker nodes to a Container Service cluster. The worker nodes can be deployed in multiple zones.

Request syntax

```
POST /api/v2/clusters/ClusterId HTTP/1.1
Content-Type:application/json
{
  "count" : Long,
  "login_password" : "String",
  "vswitch_ids" : [ "String" ],
  "worker_instance_types" : [ "String" ],
  "worker_system_disk_category" : "String",
  "worker_system_disk_size" : Long,
  "worker_data_disks" : [ {
    "category" : "String",
    "size" : Long,
    "encrypted" : "String",
    "auto_snapshot_policy_id" : "String"
  } ],
  "cloud_monitor_flags" : Boolean,
  "cpu_policy" : "String",
  "image_id" : "String",
  "user_data" : "String",
  "rds_instances" : [ "String" ],
  "tags" : [ {
    "key" : "String",
    "value" : "String"
  } ],
  "taints" : [ {
    "key" : "String",
    "value" : "String",
    "effect" : "String"
  } ],
  "runtime" : {
    "name" : "String",
    "version" : "String"
  }
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
count	Long	Yes	3	The number of worker nodes that you want to add.

Parameter	Type	Required	Example	Description
login_password	String	Yes	Hello@1234	The Secure Shell (SSH) logon password. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters.
vswitch_ids	Array of String	Yes	vsw-2ze4jvvvade1yk899****	The IDs of the vSwitches that are specified for the nodes that you want to add. Before you scale out a cluster, the cluster uses the vSwitches that are specified when the cluster is created.
worker_instance_types	Array of String	Yes	ecs.c5.xlarge	The instance types of worker nodes. You must specify at least one instance type. For more information, see the *Instance type* chapter in *Elastic Compute Service (ECS) User Guide*. **Note** The instance types are listed in descending order of priority. If worker nodes fail to be created based on the instance type of the highest priority, the system attempts to create worker nodes by using the instance type of the next highest priority.
worker_system_disk_category	String	Yes	cloud_efficiency	The type of system disk that is specified for worker nodes. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD. • `cloud_essd`: enhanced SSD. Default value: `cloud_ssd`.

Parameter	Type	Required	Example	Description
worker_system_disk_size	Long	Yes	120	The size of the system disk that is specified for worker nodes. Unit: GiB. Valid values: 40 to 500. Default value: `120`.
worker_data_disks	Array of data_disk	No		The configurations of the data disks that are mounted to worker nodes. Each configuration includes disk type and disk size.
cloud_monitor_flags	Boolean	No	true	Specifies whether to install the CloudMonitor agent. Valid values: • `true`: installs the CloudMonitor agent. • `false`: does not install the CloudMonitor agent. Default value: `false`.
cpu_policy	String	No	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used. Default value: `none`.
image_id	String	No	m-bp16z7xko3vvv8gt****	Specifies a custom image for nodes. By default, the system image is used. You can select a custom image to replace the default image.
user_data	String	No	IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFD****	The user-defined data. For more information, see the *User-defined data* chapter in the *ECS* documentation.

Parameter	Type	Required	Example	Description
rds_instances	Array of String	No	rm-2zev748xi27xc****	The names of the Relational Database Service (RDS) instances.
tags	Array of	No		The labels to be added to nodes. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with aliyun, acs:, https://, or http://.
taints	Array of taint	No		The taints to be added to nodes. Taints are added to nodes to prevent pods from being scheduled to inappropriate nodes. However, toleration rules allow pods to be scheduled to nodes with matching taints.
runtime	runtime	No		The container runtime.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "cluster_id" : "String",
  "request_id" : "String",
  "task_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
cluster_id	String	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Parameter	Type	Example	Description
request_id	String	687C5BAA-D103-4993-884B-C35E4314A1E1	The ID of the request.
task_id	String	T-5a54309c80282e39ea00002f	The ID of the task.

Examples

Sample requests

```
POST /api/v2/clusters/c82e6987e2961451182edacd74faf**** HTTP/1.1
Content-Type:application/json
{
  "count" : 3,
  "login_password" : "Hello@1234",
  "vswitch_ids" : [ "vsw-2ze4jvvvade1yk899****" ],
  "worker_instance_types" : [ "ecs.c5.xlarge" ],
  "worker_system_disk_category" : "cloud_efficiency",
  "worker_system_disk_size" : 120,
  "worker_data_disks" : [ {
    "category" : "cloud_ssd",
    "size" : 40,
    "encrypted" : "true",
    "auto_snapshot_policy_id" : "sp-2zej1nogjvovnz4z****"
  } ],
  "cloud_monitor_flags" : true,
  "cpu_policy" : "none",
  "image_id" : "m-bp16z7xko3vvv8gt****",
  "user_data" : "IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFD****",
  "rds_instances" : [ "rm-2zev748xi27xc****" ],
  "tags" : [ {
    "key" : "env",
    "value" : "prod"
  } ],
  "taints" : [ {
    "key" : "key",
    "value" : "value",
    "effect" : "NoSchedule"
  } ],
  "runtime" : {
    "name" : "docker",
    "version" : "19.03.5"
  }
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<cluster_id>c82e6987e2961451182edacd74faf****</cluster_id>
<request_id>687C5BAA-D103-4993-884B-C35E4314A1E1</request_id>
<task_id>T-5a54309c80282e39ea00002f</task_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "cluster_id" : "c82e6987e2961451182edacd74faf****",
  "request_id" : "687C5BAA-D103-4993-884B-C35E4314A1E1",
  "task_id" : "T-5a54309c80282e39ea00002f"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.3. DeleteCluster

Deletes a Container Service cluster by ID and releases all nodes in the cluster.

Request syntax

```
DELETE /clusters/ClusterId?retain_all_resources=Boolean&keep_slb=Boolean&retain_resources=[
"String"] HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c905d1364c2dd4b6284a3f41790c4****	The ID of the cluster.

Request query parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
retain_all_resources	Boolean	No	false	Specifies whether to retain all resources. If you set the parameter to `true`, the `retain_resources` parameter is ignored. • `true`: retains all resources. • `false`: does not retain all resources. Default value: `false`.
keep_slb	Boolean	No	false	Specifies whether to retain the Server Load Balancer (SLB) instances that are created for the cluster. • `true`: retains the SLB instances that are created for the cluster. • `false`: does not retain the SLB instances that are created for the cluster. Default value: `false`.
retain_resources	Array of String	No	sg-2ze6ess9kho6fdn9****	The names of the resources that you want to retain.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
DELETE /clusters/c905d1364c2dd4b6284a3f41790c4****?retain_all_resources=false&keep_slb=false&retain_resources=["sg-2ze6ess9kho6fdn9****"] HTTP/1.1
Host:cs.aliyuncs.com
Content-Type:application/json
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.4. DescribeClusterUserKubeconfig

Obtains the kubeconfig file of a specified Container Service cluster. The kubeconfig file contains detailed information about the current user and is used to configure access to the cluster.

Request syntax

```
GET /k8s/ClusterId/user_config?PrivateIpAddress=Boolean&TemporaryDurationMinutes=Long HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c5b5e80b0b64a4bf6939d2d8fbbc5****	The ID of the cluster.

Request query parameters

Parameter	Type	Required	Example	Description
PrivateIpAddress	Boolean	No	true	Specifies whether to obtain the credential that is used to connect to the cluster over the internal network. Valid values: • `true`: obtains the credential that is used to connect to the cluster over the internal network. • `false`: obtains the credential that is used to connect to the cluster over the Internet. Default value: `false`.

Parameter	Type	Required	Example	Description
TemporaryDurationMinutes	Long	No	15	The validity period of a temporary kubeconfig file. Unit: minutes. Valid values: 15 to 4320. **Note** • If you specify this parameter, the returned kubeconfig file will expire at the time specified by `expiration`. • If you do not specify this parameter, the returned kubeconfig file is permanently valid.

Response syntax

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "config" : "String",
  "expiration" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
config	String	apiVersion: v1****	The content of the kubeconfig file.
expiration	String	2024-03-10T09:56:17Z	The expiration time of the kubeconfig file. The value is in the RFC3339 format and is displayed in UTC.

Examples

Sample requests

```
GET /k8s/c5b5e80b0b64a4bf6939d2d8fbbc5****/user_config?PrivateIpAddress=true&TemporaryDurationMinutes=15 HTTP/1.1
Host:cs.aliyuncs.com
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<config>
apiVersion: v1
clusters:
- cluster:
...
</config>
<expiration>2021-03-25T10:01:20Z</expiration>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "config" : "\napiVersion: v1\nclusters:\n- cluster:\n...\n",
  "expiration" : "2021-03-25T10:01:20Z"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5. Query

3.1.3.1.5.1. DescribeClustersV1

Queries the details of a specified Container Service cluster.

Request syntax

```
GET /api/v1/clusters?name=String&cluster_type=String&page_size=Long&page_number=Long HTTP/1.1
Content-Type:application/json
```

Request parameters

Request query parameters

Parameter	Type	Required	Example	Description
name	String	No	cluster-demo	The name of the cluster. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
cluster_type	String	No	Kubernetes	The type of cluster. Valid values: • `Kubernetes`: dedicated Kubernetes cluster. • `ManagedKubernetes`: managed edge Kubernetes cluster.
page_size	Long	No	10	The number of entries to return on each page.
page_number	Long	No	3	The number of pages to return.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "clusters" : [ {
    "cluster_id" : "String",
    "cluster_type" : "String",
    "created" : "String",
    "init_version" : "String",
    "current_version" : "String",
    "next_version" : "String",
    "deletion_protection" : Boolean,
    "docker_version" : "String",
    "external_loadbalancer_id" : "String",
    "master_url" : "String",
    "meta_data" : "String",
    "name" : "String",
    "network_mode" : "String",
    "private_zone" : Boolean,
    "profile" : "String",
    "region_id" : "String",
    "resource_group_id" : "String",
    "security_group_id" : "String",
    "size" : Long,
    "state" : "String",
    "subnet_cidr" : "String",
    "tags" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "updated" : "String",
    "vpc_id" : "String",
    "vswitch_id" : "String",
    "worker_ram_role_name" : "String",
    "zone_id" : "String",
  } ],
  "page_info" : {
    "page_number" : Integer,
    "page_size" : Integer,
    "total_count" : Integer
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
clusters	Array		The list of the details of the queried cluster.

Parameter	Type	Example	Description
cluster_id	String	c3fb96524f9274b4495df0f12a6b5****	The ID of the queried cluster.
cluster_type	String	Kubernetes	The type of cluster. Valid values: • `Kubernetes`: dedicated Kubernetes cluster. • `ManagedKubernetes`: managed edge Kubernetes cluster.
created	String	2020-08-20T10:51:29+08:00	The time when the cluster was created.
init_version	String	1.16.9-aliyun.1	The version of the cluster. The cluster versions provided by Container Service are consistent with the open source versions. We recommend that you select the latest version. If you do not specify this parameter, the latest version is used. You can create clusters of the latest two Kubernetes versions in the Container Service console. You can create clusters of earlier versions by calling API operations.
current_version	String	1.16.9-aliyun.1	The Kubernetes version of the cluster.
next_version	String	1.18.8-aliyun.1	The Kubernetes version to which the cluster can be upgraded.
deletion_protection	Boolean	true	Indicates whether deletion protection is enabled for the cluster. After deletion protection is enabled, the cluster cannot be deleted in the console or by calling API operations. Valid values: • `true`: Deletion protection is enabled for the cluster. This way, the cluster cannot be deleted in the console or by calling API operations. • `false`: Deletion protection is disabled for the cluster. You can delete the cluster in the console or by calling the API.
docker_version	String	19.03.5	The Docker version that is used by the cluster.

Parameter	Type	Example	Description
external_loadbalancer_id	String	lb-2vcrbmlevo6kjpgch****	The ID of the Server Load Balancer (SLB) instance that is used for the Ingress of the cluster. The default SLB specification is slb.s1.small, which belongs to the high-performance instance type.
master_url	String	{\"api_server_endpoint\":\"\",\"intranet_api_server_endpoint\":\"https://192.168.0.251:6443\"}	The address of the cluster API server. It includes an internal endpoint and a public endpoint.
meta_data	String	{\"Addons\":[{\"config\":***}	The metadata of the cluster.
name	String	cluster-demo	The name of the cluster. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen (-).
network_mode	String	vpc	The network mode of the cluster. Valid values: • `classic`: classic network. • `vpc`: virtual private cloud (VPC). • `overlay`: overlay network. • `calico`: network powered by Calico.
private_zone	Boolean	false	Indicates whether Alibaba Cloud DNS PrivateZone is enabled. Valid values: • `true`: indicates that Alibaba Cloud DNS PrivateZone is enabled. • `false`: indicates that Alibaba Cloud DNS PrivateZone is disabled.
profile	String	Default	The identifier of the cluster. Valid values: • `Edge`: indicates that the cluster is a managed edge Kubernetes cluster. • `Default`: indicates that the cluster is not a managed edge Kubernetes cluster.
region_id	String	cn-beijing	The ID of the region where the cluster is deployed.

Parameter	Type	Example	Description
resource_group_id	String	rg-acfmyvw3wjm****	The ID of the resource group to which the cluster belongs.
security_group_id	String	sg-2vcgwsrwgt5mp0yi****	The ID of the security group to which the instances of the cluster belong.
size	Long	5	The number of nodes in the cluster. Master nodes and worker nodes are included.
state	String	running	The state of the cluster. Valid values: • `initial`: The cluster is being created. • `failed`: The cluster failed to be created. • `running`: The cluster is running. • `updating`: The cluster is being upgraded. • `updating_failed`: The cluster failed to be upgraded. • `scaling`: The cluster is being scaled. • `stopped`: The cluster is stopped. • `deleting`: The cluster is being deleted. • `deleted`: The cluster is deleted. • `delete_failed`: The cluster failed to be deleted.
subnet_cidr	String	172.21.0.0/16	The pod CIDR block. It must be a valid and private CIDR block, and must be one of the following CIDR blocks or their subnets: • 10.0.0.0/8 • 172.16-31.0.0/12-16 • 192.168.0.0/16 The CIDR block of pods cannot overlap with the CIDR block of the VPC in which the cluster is deployed and the CIDR blocks of existing clusters in the VPC. You cannot modify the pod CIDR block after the cluster is created.
tags	Array of tag		The labels of the cluster.

Parameter	Type	Example	Description
updated	String	2020-09-16T11:09:55+08:00	The time when the cluster was updated.
vpc_id	String	vpc-2vcg932hsxsxuqbgl****	The ID of the VPC where the cluster is deployed. This parameter is required when you create a cluster.
vswitch_id	String	vsw-2vc41xuumx5z2rdma****,vsw-2vc41xuumx5z2rdma****	The IDs of the vSwitches. You can select one to three vSwitches when you create a cluster. We recommend that you select vSwitches in different zones to ensure high availability.
worker_ram_role_name	String	KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****	The name of the Resource Access Management (RAM) role. The RAM role is assigned to the worker nodes that are created on Elastic Compute Service (ECS) instances.
zone_id	String	cn-beijing-b	The ID of the zone where the cluster is deployed.
page_info	object		The pagination details.
page_number	Integer	3	The page number of the returned page.
page_size	Integer	20	The number of entries returned per page.
total_count	Integer	50	The total number of entries returned.

Examples

Sample requests

```
GET /api/v1/clusters?name=cluster-demo&cluster_type=Kubernetes&page_size=10&page_number=3 HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<clusters>
    <cluster_id>c3fb96524f9274b4495df0f12a6b5****</cluster_id>
    <cluster_type>Kubernetes</cluster_type>
    <created>2020-08-20T10:51:29+08:00</created>
    <init_version>1.16.9-aliyun.1</init_version>
    <current_version>1.16.9-aliyun.1</current_version>
    <next_version>1.18.8-aliyun.1</next_version>
    <deletion_protection>true</deletion_protection>
    <docker_version>19.03.5</docker_version>
    <external_loadbalancer_id>lb-2vcrbmlevo6kjpgch****</external_loadbalancer_id>
    <master_url>{\"api_server_endpoint\":\"\",\"intranet_api_server_endpoint\":\"https://19
2.168.0.251:6443\"}</master_url>
    <meta_data>{\"Addons\":[{\"config\":***}</meta_data>
    <name>cluster-demo</name>
    <network_mode>vpc</network_mode>
    <private_zone>false</private_zone>
    <profile>Default</profile>
    <region_id>cn-beijing</region_id>
    <resource_group_id>rg-acfmyvw3wjm****</resource_group_id>
    <security_group_id>sg-2vcgwsrwgt5mp0yi****</security_group_id>
    <size>5</size>
    <state>running</state>
    <subnet_cidr>172.21.0.0/16</subnet_cidr>
    <tags>
        <key>env</key>
        <value>prod</value>
    </tags>
    <updated>2020-09-16T11:09:55+08:00</updated>
    <vpc_id>vpc-2vcg932hsxsxuqbgl****</vpc_id>
    <vswitch_id>vsw-2vc41xuumx5z2rdma****,vsw-2vc41xuumx5z2rdma****</vswitch_id>
    <worker_ram_role_name>KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****</worker
_ram_role_name>
    <zone_id>cn-beijing-b</zone_id>
</clusters>
<page_info>
    <page_number>3</page_number>
    <page_size>20</page_size>
    <total_count>50</total_count>
</page_info>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "clusters" : [ {
    "cluster_id" : "c3fb96524f9274b4495df0f12a6b5****",
    "cluster_type" : "Kubernetes",
    "created" : "2020-08-20T10:51:29+08:00",
    "init_version" : "1.16.9-aliyun.1",
    "current_version" : "1.16.9-aliyun.1",
    "next_version" : "1.18.8-aliyun.1",
    "deletion_protection" : true,
    "docker_version" : "19.03.5",
    "external_loadbalancer_id" : "lb-2vcrbmlevo6kjpgch****",
    "master_url" : "{\\\"api_server_endpoint\\\":\\\"\\\",\\\"intranet_api_server_endpoint\
\\":\\\"https://192.168.0.251:6443\\\"}",
    "meta_data" : "{\\\"Addons\\\":[{\\\"config\\\":***}",
    "name" : "cluster-demo",
    "network_mode" : "vpc",
    "private_zone" : false,
    "profile" : "Default",
    "region_id" : "cn-beijing",
    "resource_group_id" : "rg-acfmyvw3wjm****",
    "security_group_id" : "sg-2vcgwsrwgt5mp0yi****",
    "size" : 5,
    "state" : "running",
    "subnet_cidr" : "172.21.0.0/16",
    "tags" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "updated" : "2020-09-16T11:09:55+08:00",
    "vpc_id" : "vpc-2vcg932hsxsxuqbgl****",
    "vswitch_id" : "vsw-2vc41xuumx5z2rdma****,vsw-2vc41xuumx5z2rdma****",
    "worker_ram_role_name" : "KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****",
    "zone_id" : "cn-beijing-b",
  } ],
  "page_info" : {
    "page_number" : 3,
    "page_size" : 20,
    "total_count" : 50
  }
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5.2. DescribeClusterDetail

Queries the details of a specific Container Service cluster by the cluster ID.

Request syntax

```
GET /clusters/ClusterId HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	cdde1f21ae22e483ebcb068a6eb7f****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "cluster_id" : "String",
  "cluster_type" : "String",
  "created" : "String",
  "init_version" : "String",
  "current_version" : "String",
  "next_version" : "String",
  "deletion_protection" : Boolean,
  "docker_version" : "String",
  "external_loadbalancer_id" : "String",
  "meta_data" : "String",
  "name" : "String",
  "network_mode" : "String",
  "region_id" : "String",
  "resource_group_id" : "String",
  "security_group_id" : "String",
  "size" : Long,
  "state" : "String",
  "tags" : [ {
    "key" : "String",
    "value" : "String"
  } ],
  "updated" : "String",
  "vpc_id" : "String",
  "vswitch_id" : "String",
  "subnet_cidr" : "String",
  "zone_id" : "String",
  "master_url" : "String",
  "private_zone" : Boolean,
  "profile" : "String",
  "worker_ram_role_name" : "String",
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
cluster_id	String	c82e6987e2961451182edacd74faf****	The ID of the cluster.
cluster_type	String	Kubernetes	The type of cluster. Valid values: • `Kubernetes`: dedicated Kubernetes cluster. • `ManagedKubernetes`: managed edge Kubernetes cluster.
created	String	2019-11-25T15:50:20+08:00	The time when the cluster was created.
init_version	String	1.16.6-aliyun.1	The Kubernetes version that is initially used by the cluster.
current_version	String	1.16.6-aliyun.1	The Kubernetes version of the cluster.
next_version	String	1.18.8-aliyun.1	The Kubernetes version to which the cluster can be upgraded.
deletion_protection	Boolean	true	Indicates whether deletion protection is enabled for the cluster. If deletion protection is enabled, the cluster cannot be deleted in the console or by calling API operations. Valid values: • `true`: Deletion protection is enabled for the cluster. This way, the cluster cannot be deleted in the console or by calling API operations. • `false`: Deletion protection is disabled for the cluster. You can delete the cluster in the console or by calling API operations.
docker_version	String	19.03.5	The Docker version that is used by the cluster.
external_loadbalancer_id	String	lb-2ze3buguz3gx9920z****	The ID of the Server Load Balancer (SLB) instance that is used for the Ingress of the cluster.
meta_data	String	\"Addons\":***	The metadata of the cluster.

Parameter	Type	Example	Description
name	String	cluster-demo	The name of the cluster. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
network_mode	String	vpc	The network mode of the cluster. Valid values: • `classic`: classic network. • `vpc`: virtual private cloud (VPC). • `overlay`: overlay network. • `calico`: network powered by Calico. Default value: `vpc`.
region_id	String	cn-beijing	The ID of the region where the cluster is deployed.
resource_group_id	String	rg-acfmyvw3wjm****	The ID of the resource group to which the cluster belongs.
security_group_id	String	sg-25yq****	The ID of the security group to which the instances of the cluster belong.
size	Long	5	The number of nodes in the cluster. Master nodes and worker nodes are included.

Parameter	Type	Example	Description
state	String	running	The state of the cluster. Valid values: • `initial`: The cluster is being created. • `failed`: The cluster failed to be created. • `running`: The cluster is running. • `updating`: The cluster is being upgraded. • `updating_failed`: The cluster failed to be upgraded. • `scaling`: The cluster is being scaled. • `stopped`: The cluster is stopped. • `deleting`: The cluster is being deleted. • `deleted`: The cluster is deleted. • `delete_failed`: The cluster failed to be deleted.
tags	Array of tag		The labels of the cluster.
updated	String	2020-01-13T23:01:03+08:00	The time when the cluster was updated.
vpc_id	String	vpc-2zecuu62b9zw7a7qn****	The ID of the VPC where the cluster is deployed. This parameter is required when you create a cluster.
vswitch_id	String	vsw-2zete8s4qocqg0mf6****,vsw-2zete8s4qocqg0mf6****	The IDs of vSwitches. You can select one to three vSwitches when you create a cluster. We recommend that you select vSwitches in different zones to ensure high availability.
subnet_cidr	String	172.20.0.0/16	The pod CIDR block. It must be a valid and private CIDR block, and must be one of the following CIDR blocks or their subnets: • 10.0.0.0/8 • 172.16-31.0.0/12-16 • 192.168.0.0/16 The pod CIDR block cannot overlap with the CIDR block of the VPC or the CIDR blocks of the clusters in the VPC.

Parameter	Type	Example	Description
zone_id	String	cn-beijing-a	The ID of the zone where the cluster is deployed.
master_url	String	{\"intranet_api_server_endpoint\":\"https://192.168.0.251:6443\"***}	The address of the cluster. It includes an internal endpoint and a public endpoint.
private_zone	Boolean	false	Indicates whether Alibaba Cloud DNS PrivateZone is enabled. • `true`: indicates that Alibaba Cloud DNS PrivateZone is enabled. • `false`: indicates that Alibaba Cloud DNS PrivateZone is disabled.
profile	String	Default	Indicates the scenario in which the cluster is used. Valid values: • `Default`: indicates that the cluster is used in non-edge computing scenarios. • `Edge`: indicates that the cluster is used in edge computing scenarios.
worker_ram_role_name	String	KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****	The name of the Resource Access Management (RAM) role. The RAM role is assigned to the worker nodes that are created on Elastic Compute Service (ECS) instances.

Examples

Sample requests

```
GET /clusters/cdde1f21ae22e483ebcb068a6eb7f**** HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<cluster_id>c82e6987e2961451182edacd74faf****</cluster_id>
<cluster_type>Kubernetes</cluster_type>
<created>2019-11-25T15:50:20+08:00</created>
<init_version>1.16.6-aliyun.1</init_version>
<current_version>1.16.6-aliyun.1</current_version>
<next_version>1.18.8-aliyun.1</next_version>
<deletion_protection>true</deletion_protection>
<docker_version>19.03.5</docker_version>
<external_loadbalancer_id>lb-2ze3buguz3gx9920z****</external_loadbalancer_id>
<meta_data>\"Addons\":***</meta_data>
<name>cluster-demo</name>
<network_mode>vpc</network_mode>
<region_id>cn-beijing</region_id>
<resource_group_id>rg-acfmyvw3wjm****</resource_group_id>
<security_group_id>sg-25yq****</security_group_id>
<size>5</size>
<state>running</state>
<tags>
    <key>env</key>
    <value>prod</value>
</tags>
<updated>2020-01-13T23:01:03+08:00</updated>
<vpc_id>vpc-2zecuu62b9zw7a7qn****</vpc_id>
<vswitch_id>vsw-2zete8s4qocqg0mf6****,vsw-2zete8s4qocqg0mf6****</vswitch_id>
<subnet_cidr>172.20.0.0/16</subnet_cidr>
<zone_id>cn-beijing-a</zone_id>
<master_url>{\"intranet_api_server_endpoint\":\"https://192.168.0.251:6443\"***}</master_ur
l>
<private_zone>false</private_zone>
<profile>Default</profile>
<worker_ram_role_name>KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****</worker_ram
_role_name>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "cluster_id" : "c82e6987e2961451182edacd74faf****",
  "cluster_type" : "Kubernetes",
  "created" : "2019-11-25T15:50:20+08:00",
  "init_version" : "1.16.6-aliyun.1",
  "current_version" : "1.16.6-aliyun.1",
  "next_version" : "1.18.8-aliyun.1",
  "deletion_protection" : true,
  "docker_version" : "19.03.5",
  "external_loadbalancer_id" : "lb-2ze3buguz3gx9920z****",
  "meta_data" : "\\\"Addons\\\":***",
  "name" : "cluster-demo",
  "network_mode" : "vpc",
  "region_id" : "cn-beijing",
  "resource_group_id" : "rg-acfmyvw3wjm****",
  "security_group_id" : "sg-25yq****",
  "size" : 5,
  "state" : "running",
  "tags" : [ {
    "key" : "env",
    "value" : "prod"
  } ],
  "updated" : "2020-01-13T23:01:03+08:00",
  "vpc_id" : "vpc-2zecuu62b9zw7a7qn****",
  "vswitch_id" : "vsw-2zete8s4qocqg0mf6****,vsw-2zete8s4qocqg0mf6****",
  "subnet_cidr" : "172.20.0.0/16",
  "zone_id" : "cn-beijing-a",
  "master_url" : "{\\\"intranet_api_server_endpoint\\\":\\\"https://192.168.0.251:6443\\\"*
**}",
  "private_zone" : false,
  "profile" : "Default",
  "worker_ram_role_name" : "KubernetesWorkerRole-ec87d15b-edca-4302-933f-c8a16bf0****",
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5.3. DescribeClusterResources

Queries all resources in a specified Container Service cluster.

Request syntax

```
GET /clusters/ClusterId/resources HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	cb95aa626a47740afbf6aa099b65****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
[ {
  "cluster_id" : "String",
  "created" : "String",
  "instance_id" : "String",
  "resource_info" : "String",
  "resource_type" : "String",
  "state" : "String"
} ]
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
	Array		The list of resources in the cluster.
cluster_id	String	cb95aa626a47740afbf6aa099b65****	The ID of the cluster.
created	String	2020-09-11T10:11:54+08:00	The time when the resource was created.
instance_id	String	lb-wz9poz4r0ymh8u0uf****	The ID of the resource.
resource_info	String	{\"Id\":\"k8s_master_slb\",\"Name\":\"k8s_master_slb\",\"Type\":\"ALIYUN::SLB::LoadBalancer\",\"Status\":\"CREATE_COMPLETE\",\"StatusReason\":\"state changed\",\"Updated\":\"2020-05-21T13:25:02\",\"PhysicalId\":\"lb-wz9poz4r0ymh8u0uf****\"}	The information about the resource.

Parameter	Type	Example	Description
resource_type	String	ALIYUN::SLB::LoadBalancer	The type of resource.
state	String	CREATE_COMPLETE	The state of the resource. Valid values: • `CREATE_COMPLETE`: The resource is created. • `CREATE_FAILED`: The resource failed to be created. • `CREATE_IN_PROGRESS`: The resource is being created. • `DELETE_FAILED`: The resource failed to be deleted. • `DELETE_IN_PROGRESS`: The resource is being deleted. • `ROLLBACK_COMPLETE`: The resource is rolled back. • `ROLLBACK_FAILED`: The resource failed to be rolled back. • `ROLLBACK_IN_PROGRESS`: The resource is being rolled back.

Examples

Sample requests

```
GET /clusters/cb95aa626a47740afbf6aa099b65****/resources HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<0>
    <cluster_id>cb95aa626a47740afbf6aa099b65****</cluster_id>
    <created>2020-09-11T10:11:54+08:00</created>
    <instance_id>lb-wz9poz4r0ymh8u0uf****</instance_id>
    <resource_info>{\"Id\":\"k8s_master_slb\",\"Name\":\"k8s_master_slb\",\"Type\":\"ALIYUN
::SLB::LoadBalancer\",\"Status\":\"CREATE_COMPLETE\",\"StatusReason\":\"state changed\",\"U
pdated\":\"2020-05-21T13:25:02\",\"PhysicalId\":\"lb-wz9poz4r0ymh8u0uf****\"}</resource_inf
o>
    <resource_type>ALIYUN::SLB::LoadBalancer</resource_type>
    <state>CREATE_COMPLETE</state>
</0>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
[ {
  "cluster_id" : "cb95aa626a47740afbf6aa099b65****",
  "created" : "2020-09-11T10:11:54+08:00",
  "instance_id" : "lb-wz9poz4r0ymh8u0uf****",
  "resource_info" : "{\\\"Id\\\":\\\"k8s_master_slb\\\",\\\"Name\\\":\\\"k8s_master_slb\\\"
,\\\"Type\\\":\\\"ALIYUN::SLB::LoadBalancer\\\",\\\"Status\\\":\\\"CREATE_COMPLETE\\\",\\\"
StatusReason\\\":\\\"state changed\\\",\\\"Updated\\\":\\\"2020-05-21T13:25:02\\\",\\\"Phys
icalId\\\":\\\"lb-wz9poz4r0ymh8u0uf****\\\"}",
  "resource_type" : "ALIYUN::SLB::LoadBalancer",
  "state" : "CREATE_COMPLETE"
} ]
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5.4. DescribeClusterNamespaces

Queries the namespaces of a specified cluster.

Request syntax

```
GET /k8s/ClusterId/namespaces HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c68069cade53b4558924a924b415f****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200 OK
Content-Type:application/json
[ "String" ]
```

Response parameters

Response body parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
	Array of String	kube-system	The names of the namespaces.

Examples

```
GET /k8s/c68069cade53b4558924a924b415f****/namespaces HTTP/1.1
Host:cs.aliyuncs.com
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<0>kube-system</0>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
[ "kube-system" ]
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5.5. DescribeExternalAgent

Obtains the agent configurations of an external cluster that is registered in the Container Service console. You can deploy the agent configurations in an external cluster. This allows you to access the API server of the cluster.

Request syntax

```
GET /k8s/ClusterId/external/agent/deployment?PrivateIpAddress=String HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Request query parameters

Parameter	Type	Required	Example	Description
PrivateIpAddress	String	No	true	Specifies whether to obtain the credential that is used to access the internal network. • `true`: obtains the credential that is used to access the internal network. • `false`: obtains the credential that is used to access the Internet. Default value: `false`.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "config" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
config	String	apiVersion: v1****	The agent configurations in the YAML format.

Examples

Sample requests

```
GET /k8s/c106f377e16f34eb1808d6b9362c9****/external/agent/deployment?PrivateIpAddress=true
HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<config>apiVersion: v1****</config>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "config" : "apiVersion: v1****"
}
```

3.1.3.1.5.6. DescribeUserQuota

Queries resource quotas.

Request parameter types

This operation uses only common request parameters. For more information, see the Common request parameters topic.

Request structure

```
http://provision.cs.aliyun-inc.com http
```

Request parameters

Response parameters

Parameter	Type	Example	Description
cluster_quota	Long	"20"	The quota of dedicated Kubernetes clusters. Default value: 20. To increase the quota, submit a ticket.
ask_cluster_quota	Long	3	The quota of serverless Kubernetes (ASK) clusters.
cluster_nodepool_quota	Long	"10"	The quota of node pools in an ACK cluster.
cluster_quota	Long	"50"	The quota of ACK clusters for all types.
node_quota	Long	"100"	The quota of nodes in an ACK cluster.

Examples

Sample requests

```
GET /quota HTTP/1.1
Common request parameters
```

Sample success responses

`XML` format

```
<amk_cluster_quota>20</amk_cluster_quota>
<cluster_nodepool_quota>10</cluster_nodepool_quota>
<cluster_quota>50</cluster_quota>
<node_quota>100</node_quota>
<ask_cluster_quota>3</ask_cluster_quota>
```

`JSON` format

```
{
    "amk_cluster_quota": "20",
    "cluster_nodepool_quota": "10",
    "cluster_quota": "50",
    "node_quota": "100",
    "ask_cluster_quota": "3"
}
```

Error codes

You can check further details of error codes. For a list of error codes, visit the Error codes.

3.1.3.1.5.7. DescribeClusterLogs

Queries the logs of a specified Container Service cluster.

Request syntax

```
GET /clusters/ClusterId/logs HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
[ {
  "ID" : Long,
  "cluster_id" : "String",
  "cluster_log" : "String",
  "log_level" : "String",
  "created" : "String",
  "updated" : "String"
} ]
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
	Array		The list of the returned logs.
ID	Long	590749245	The ID of the log.
cluster_id	String	c23421cfa74454bc8b37163fd19af***	The ID of the cluster.
cluster_log	String	start to update cluster status to CREATE_COMPLETE	The content of the log.
log_level	String	0004	The level of the log.
created	String	2020-09-11T10:11:51+08:00	The time when the log was generated.
updated	String	2020-09-11T10:11:51+08:00	The time when the log was updated.

Examples

Sample requests

```
GET /clusters/c106f377e16f34eb1808d6b9362c9****/logs HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<0>
    <ID>590749245</ID>
    <cluster_id>c23421cfa74454bc8b37163fd19af***</cluster_id>
    <cluster_log>start to update cluster status to CREATE_COMPLETE</cluster_log>
    <log_level>0004</log_level>
    <created>2020-09-11T10:11:51+08:00</created>
    <updated>2020-09-11T10:11:51+08:00</updated>
</0>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
[ {
  "ID" : 590749245,
  "cluster_id" : "c23421cfa74454bc8b37163fd19af***",
  "cluster_log" : "start to update cluster status to CREATE_COMPLETE",
  "log_level" : "0004",
  "created" : "2020-09-11T10:11:51+08:00",
  "updated" : "2020-09-11T10:11:51+08:00"
} ]
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.5.8. DescribeKubernetesVersionMetadata

Queries the details of a Container Service for Kubernetes (ACK) cluster version.

Request parameter types

This operation uses only common request parameters. For more information, see the Common request parameters topic.

Request structure

```
get /api/v1/metadata/versions http|https
```

Request parameters

Parameter	Type	Required	Example	Description
Region	String	Yes	cn-beijing	The ID of the region where the ACK cluster is deployed.

Parameter	Type	Required	Example	Description
MultiAZ	Boolean	No	false	Specifies whether to query a multi-zone ACK cluster.
ClusterType	String	Yes	Kubernetest	The type of ACK cluster. Valid values:
KubernetesVersion	String	No	1.16.9-aliyun.1	The version of the ACK cluster, such as 1.16.9-aliyun.1.
Profile	String	No	Default	The identifier of an edge cluster. • Default: The ACK cluster is not an edge cluster. • Edge: The ACK cluster is an edge cluster.

Response parameters

Parameter	Type	Example	Description
	Array of data		The returned data.
capabilities	Object	N/A	The features of the ACK cluster version.
images	Array		The system images of the Elastic Compute Service (ECS) instances.
image_id	String	"centos_7_7_x64_20G_alibase_20200426.vhd"	The ID of the snapshot.
image_name	String	"CentOS 7.7"	The name of the image.
image_type	String	"centos_7_7_2"	The type of image.
os_type	String	"Linux"	The type of operating system. Valid values: Windows and Linux. Default value: Linux.
os_version	String	"7.7"	The version number of the operating system.

Parameter	Type	Example	Description
platform	String	"CentOS"	The release version of the operating system. Valid values: CentOS, AliyunLinux, Windows, and WindowsCore.
meta_data	Object	N/A	The metadata of the ACK cluster version.
multi_az	String	"false"	Indicates whether the ACK cluster is a multi-zone cluster.
runtimes	Array		The configuration of the container runtime.
name	String	"docker"	The name of the container runtime.
version	String	"19.05.3"	The version of the container runtime.
version	String	"1.16.9-aliyun.1"	The version of the ACK cluster.

Examples

Sample requests

```
GET /api/v1/metadata/versions HTTP/1.1
{
    "Region":"cn-beijing",
    "ClusterType":"Kubernetes",
    "MultiAZ":false,
    "KubernetestVersion":"1.16.9-aliyun.1"
}
```

Sample success responses

`XML` format

```
<0>
    <version>1.14.8-aliyun.1</version>
    <multi_az>false</multi_az>
    <capabilities>
        <VpcCidr>192.168.0.0/16</VpcCidr>
        <ZoneId/>
    </capabilities>
    <meta_data>
        <KubernetesVersion>1.14.8-aliyun.1</KubernetesVersion>
    </meta_data>
    <runtimes>
        <name>docker</name>
        <version>19.03.5</version>
    </runtimes>
    <images>
        <image_id>centos_7_7_x64_20G_alibase_20200426.vhd</image_id>
        <image_name>CentOS 7.7</image_name>
        <image_type>centos_7_7_20</image_type>
        <image_category>system</image_category>
        <platform>CentOS</platform>
        <os_type>Linux</os_type>
        <os_version>7.7</os_version>
    </images>
</0>
```

`JSON` format

```
[
    {
        "version":"1.14.8-aliyun.1",
        "multi_az":false,
        "capabilities":{
            "VpcCidr":"192.168.0.0/16",
            "ZoneId":""
        },
        "meta_data":{
            "KubernetesVersion":"1.14.8-aliyun.1"
        },
        "runtimes":[
            {
                "name":"docker",
                "version":"19.03.5"
            }
        ],
        "images":[
            {
                "image_id":"centos_7_7_x64_20G_alibase_20200426.vhd",
                "image_name":"CentOS 7.7",
                "image_type":"centos_7_7_20",
                "image_category":"system",
                "platform":"CentOS",
                "os_type":"Linux",
                "os_version":"7.7"
            }
        ]
    }
]
```


Error codes

You can check further details of error codes. For a list of error codes, visit the Error codes.

3.1.3.1.6. Modify

3.1.3.1.6.1. ModifyCluster

Modifies the configurations of a specified Container Service cluster.

Request syntax

```
PUT /api/v2/clusters/ClusterId HTTP/1.1
Content-Type:application/json
{
  "api_server_eip" : Boolean,
  "api_server_eip_id" : "String",
  "deletion_protection" : Boolean,
  "instance_deletion_protection" : Boolean,
  "ingress_domain_rebinding" : "String",
  "ingress_loadbalancer_id" : "String",
  "resource_group_id" : "String",
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	cb95aa626a47740afbf6aa099b65****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
api_server_eip	Boolean	No	true	Specifies whether to associate an elastic IP address (EIP) with the cluster API server. This enables Internet access for the cluster. Valid values: • `true`: associates an EIP with the cluster API server. • `false`: does not associate an EIP with the cluster API server.
api_server_eip_id	String	No	eip-wz9fnasl6dsfhmvci****	The ID of the EIP that you want to associate with the cluster API server. The parameter takes effect only if `api_server_eip` is set to `true`.

Parameter	Type	Required	Example	Description
deletion_protection	Boolean	No	true	Specifies whether to enable deletion protection for the cluster. After deletion protection is enabled, the cluster cannot be deleted in the console or by calling API operations. Valid values: • `true`: enables deletion protection for the cluster. This way, the cluster cannot be deleted in the console or by calling API operations. • `false`: disables deletion protection for the cluster. This way, the cluster can be deleted in the console or by calling API operations. Default value: `false`.
instance_deletion_protection	Boolean	No	true	Specifies whether to enable deletion protection for the nodes in the cluster. If deletion protection is enabled, the nodes in the cluster cannot be deleted in the console or by calling API operations. Valid values: • `true`: The nodes in the cluster cannot be deleted in the console or by calling API operations. • `false`: The nodes in the cluster can be deleted in the console or by calling API operations. Default value: `false`.
ingress_domain_rebinding	String	No	true	Specifies whether to remap the test domain name of the cluster. Valid values: • `true`: remaps the test domain name of the cluster. • `false`: does not remap the test domain name of the cluster. Default value: `false`.

Parameter	Type	Required	Example	Description
ingress_loadbalancer_id	String	No	lb-wz97kes8tnndkpodw****	The ID of the Server Load Balancer (SLB) instance that is associated with the cluster.
resource_group_id	String	No	rg-acfmyvw3wjm****	The ID of the resource group to which the cluster belongs.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "cluster_id" : "String",
  "request_id" : "String",
  "task_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
cluster_id	String	cb95aa626a47740afbf6aa09****	The ID of the cluster.
request_id	String	687C5BAA-D103-4993-884B-C35E4314****	The ID of the request.
task_id	String	T-5a54309c80282e39ea00****	The ID of the task.

Examples

Sample requests

```
PUT /api/v2/clusters/cb95aa626a47740afbf6aa099b65**** HTTP/1.1
Content-Type:application/json
{
  "api_server_eip" : true,
  "api_server_eip_id" : "eip-wz9fnasl6dsfhmvci****",
  "deletion_protection" : true,
  "instance_deletion_protection" : true,
  "ingress_domain_rebinding" : "true",
  "ingress_loadbalancer_id" : "lb-wz97kes8tnndkpodw****",
  "resource_group_id" : "rg-acfmyvw3wjm****",
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<cluster_id>cb95aa626a47740afbf6aa09****</cluster_id>
<request_id>687C5BAA-D103-4993-884B-C35E4314****</request_id>
<task_id>T-5a54309c80282e39ea00****</task_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "cluster_id" : "cb95aa626a47740afbf6aa09****",
  "request_id" : "687C5BAA-D103-4993-884B-C35E4314****",
  "task_id" : "T-5a54309c80282e39ea00****"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.6.2. ModifyClusterTags

Modifies the labels of a specified Container Service cluster.

Request syntax

```
POST /clusters/ClusterId/tags HTTP/1.1
Content-Type:application/json
[ {
  "key" : "String",
  "value" : "String"
} ]
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
	Array of tag	No		The data of the labels that you want to modify.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /clusters/c106f377e16f34eb1808d6b9362c9****/tags HTTP/1.1
Content-Type:application/json
[ {
  "key" : "env",
  "value" : "prod"
} ]
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.7. Upgrade

3.1.3.1.7.1. UpgradeCluster

Upgrades a specified Container Service cluster.

Request syntax

```
POST /api/v2/clusters/ClusterId/upgrade HTTP/1.1
Content-Type:application/json
{
  "component_name" : "String",
  "next_version" : "String",
  "version" : "String"
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
component_name	String	No	k8s	The name of the component. Set the value to `k8s`.
next_version	String	No	1.16.9-aliyun.1	The Kubernetes version to which the cluster can be upgraded.
version	String	No	1.14.8-aliyun.1	The Kubernetes version of the cluster.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /api/v2/clusters/c82e6987e2961451182edacd74faf****/upgrade HTTP/1.1
Content-Type:application/json
{
  "component_name" : "k8s",
  "next_version" : "1.16.9-aliyun.1",
  "version" : "1.14.8-aliyun.1"
}
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.7.2. GetUpgradeStatus

Queries the upgrade status of a specified Container Service cluster.

Request syntax

```
GET /api/v2/clusters/ClusterId/upgrade/status HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "error_message" : "String",
  "precheck_report_id" : "String",
  "status" : "String",
  "upgrade_step" : "String",
  "upgrade_task" : {
    "status" : "String",
    "message" : "String"
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
error_message	String	subject to actual return	The error message returned during the upgrade.
precheck_report_id	String	be4c8eb72de94d459ea7ace7c811d119	The ID of the precheck report.
status	String	running	The state of the upgrade.
upgrade_step	String	prechecking	The current phase of the upgrade.
upgrade_task	object		The details of the upgrade task.
status	String	running	The state of the upgrade task.
message	String	subject to actual return	The description of the upgrade task.

Examples

Sample requests

```
GET /api/v2/clusters/c106f377e16f34eb1808d6b9362c9****/upgrade/status HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<error_message>subject to actual return</error_message>
<precheck_report_id>be4c8eb72de94d459ea7ace7c811d119</precheck_report_id>
<status>running</status>
<upgrade_step>prechecking</upgrade_step>
<upgrade_task>
    <status>running</status>
    <message>subject to actual return</message>
</upgrade_task>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "error_message" : "subject to actual return",
  "precheck_report_id" : "be4c8eb72de94d459ea7ace7c811d119",
  "status" : "running",
  "upgrade_step" : "prechecking",
  "upgrade_task" : {
    "status" : "running",
    "message" : "subject to actual return"
  }
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.7.3. PauseClusterUpgrade

Suspends the upgrade of a specified Container Service cluster.

Request syntax

```
POST /api/v2/clusters/ClusterId/upgrade/pause HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /api/v2/clusters/c82e6987e2961451182edacd74faf****/upgrade/pause HTTP/1.1
Content-Type:application/json
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.7.4. CancelClusterUpgrade

Cancels the upgrade of a specified Container Service cluster.

Request syntax

```
POST /api/v2/clusters/ClusterId/upgrade/cancel HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /api/v2/clusters/c106f377e16f34eb1808d6b9362c9****/upgrade/cancel HTTP/1.1
Content-Type:application/json
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.1.7.5. ResumeUpgradeCluster

Resumes the upgrade of a specified Container Service cluster.

Request syntax

```
POST /api/v2/clusters/ClusterId/upgrade/resume HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /api/v2/clusters/c82e6987e2961451182edacd74faf****/upgrade/resume HTTP/1.1
Content-Type:application/json
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2. Nodes

3.1.3.2.1. DescribeClusterNodes

Queries information about the nodes in a specified Container Service cluster.

Request headers

This operation uses only common request headers. For more information, see the Common request parameters topic.

Request syntax

```
get /clusters/{ClusterId}/nodes http|https
```

Request parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.
pageSize	String	No	3	The number of entries to return on each page.
pageNumber	String	No	50	The number of the page to return.
nodepool_id	String	No	np***	The ID of the node pool.
state	String	No	all	The state of the nodes in the cluster. You can filter the nodes by state. Valid values: • all: Query all nodes in the cluster. • running: Query nodes that are running in the cluster. • removing: Query nodes that are being removed from the cluster. • initial: Query nodes that are initializing in the cluster. • failed: Query nodes that failed to be created in the cluster.

Response

Parameter	Type	Example	Description
nodes	Array of node		The details of the nodes in the cluster.

Parameter	Type	Example	Description
creation_time	String	"2020-08-25T11:25:35+08:00"	The time when the node was created.
error_message	String	"***"	The error message generated when the node was created.
expired_time	String	"2099-12-31T23:59:00+08:00"	The expiration time of the node.
host_name	String	"iZ2vcckdmxp7u0urj2k****"	The name of the host.
image_id	String	"aliyun_2_1903_x64_20G_alibase_20200529.vhd"	The ID of the system image that is used by the node.
instance_charge_type	String	"PostPaid"	The billing method of the node.
instance_id	String	"i-2vcckdmxp7u0urj2k2rw"	The ID of the Elastic Compute Service (ECS) instance on which the node is created.
instance_name	String	"worker-k8s-for-cs-c5cdf7e3938bc4f8eb0e44b21a80f****"	The name of the node.
instance_role	String	"Worker"	The type of node. Valid values: • Master: master node. • Worker: worker node.
instance_status	String	"Running"	The state of the node.
instance_type	String	"ecs.c5.xlarge"	The instance type of the node.
instance_type_family	String	"ecs.c5"	The ECS instance family of the node.
ip_address	Array of String		The IP address of the node.
is_aliyun_node	Boolean	"true"	Indicates whether the instance is provided by Alibaba Cloud.

Parameter	Type	Example	Description
node_name	String	"cn-chengdu.192.168.0.36"	The name of the node. This name is the identifier of the node in the cluster.
node_status	String	"Ready"	Indicates whether the node is ready.
nodepool_id	String	"np0794239424a84eb7a95327369d56****"	The ID of the node pool to which the node belongs.
source	String	"ess_attach"	The source of the node. You can add a node to a cluster in the Container Service console or Resource Orchestration Service (ROS) console.
state	String	"running"	The state of the node.
page	Object		The pagination details.
page_number	Integer	"1"	The page number of the returned page.
page_size	Integer	"10"	The number of entries returned per page.
total_count	Integer	"5"	The total number of entries returned.

Example

Sample requests

```
GET /clusters/[ClusterId]/nodes HTTP/1.1
Common request headers
{
    "ClusterId":" c82e6987e2961451182edacd74faf****"
}
```

Sample success responses

`XML` format

```
<nodes>
    <creation_time>2020-08-25T11:25:35+08:00</creation_time>
    <error_message/>
    <instance_name>worker-k8s-for-cs-c5cdf7e3938bc4f8eb0e44b21a80f****</instance_name>
    <node_status>Ready</node_status>
    <is_aliyun_node>true</is_aliyun_node>
    <node_name>cn-chengdu.192.168.0.36</node_name>
    <expired_time>2099-12-31T23:59:00+08:00</expired_time>
    <ip_address>192.168.0.36</ip_address>
    <source>ess_attach</source>
    <instance_type_family>ecs.c5</instance_type_family>
    <instance_id>i-2vcckdmxp7u0urj2k2rw</instance_id>
    <instance_charge_type>PostPaid</instance_charge_type>
    <instance_role>Worker</instance_role>
    <instance_status>Running</instance_status>
    <state>running</state>
    <image_id>aliyun_2_1903_x64_20G_alibase_20200529.vhd</image_id>
    <instance_type>ecs.c5.xlarge</instance_type>
    <nodepool_id>np0794239424a84eb7a95327369d56****</nodepool_id>
    <host_name>iZ2vcckdmxp7u0urj2k****</host_name>
</nodes>
<page>
    <page_number>1</page_number>
    <total_count>5</total_count>
    <page_size>10</page_size>
</page>
```

`JSON` format

```
{
    "nodes": [
        {
            "creation_time": "2020-08-25T11:25:35+08:00",
            "error_message": "",
            "instance_name": "worker-k8s-for-cs-c5cdf7e3938bc4f8eb0e44b21a80f****",
            "node_status": "Ready",
            "is_aliyun_node": "true",
            "node_name": "cn-chengdu.192.168.0.36",
            "expired_time": "2099-12-31T23:59:00+08:00",
            "ip_address": "192.168.0.36",
            "source": "ess_attach",
            "instance_type_family": "ecs.c5",
            "instance_id": "i-2vcckdmxp7u0urj2k2rw",
            "instance_charge_type": "PostPaid",
            "instance_role": "Worker",
            "instance_status": "Running",
            "state": "running",
            "image_id": "aliyun_2_1903_x64_20G_alibase_20200529.vhd",
            "instance_type": "ecs.c5.xlarge",
            "nodepool_id": "np0794239424a84eb7a95327369d56****",
            "host_name": "iZ2vcckdmxp7u0urj2k****"
        }
    ],
    "page": {
        "page_number": "1",
        "total_count": "5",
        "page_size": "10"
    }
}
```


Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.2. RemoveClusterNodes

Removes nodes from a specified Container Service cluster.

> **Note**
>
> - When you remove a node, the pods that run on the node are migrated to other nodes. This may cause service interruptions. We recommend that you remove nodes during off-peak hours.
> - Unknown errors may occur when you remove nodes. Before you remove nodes, we recommend that you back up the data of these nodes.
> - Nodes remain in the Unschedulable state when they are being removed.
> - You can remove only worker nodes by calling this operation.

Request headers

This operation uses only common request headers. For more information, see Common parameters.

Request syntax

```
POST /api/v2/clusters/{ClusterId}/nodes/remove
```

Request parameters

Parameter	Type	Location	Required	Example	Description
ClusterId	String	Path	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.
	Object	Body	No		Specifies whether to release the Elastic Compute Service (ECS) instances when they are removed from the cluster.
drain_node	Boolean	Body	No	true	Specifies whether to remove all pods from the nodes that you want to remove.
nodes	Array of String	Body	Yes	cn-shenzhen.10.1.0.1	The names of the nodes that you want to remove.
release_node	Boolean	Body	No	false	Specifies whether to release the ECS instances when they are removed from the cluster.

Examples

Sample requests

```
POST /api/v2/clusters/c82e6987e2961451182edacd74faf****/nodes/remove
Common request headers
{
    "release_node":false,
    "nodes":[
        "cn-shenzhen.192.168.x.x"
    ],
    "drain_node":false
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.3. AttachInstances

Adds existing Elastic Compute Service (ECS) instances to a specified Container Service cluster.

Request syntax

```
POST /clusters/ClusterId/attach HTTP/1.1
Content-Type:application/json
{
  "instances" : [ "String" ],
  "key_pair" : "String",
  "password" : "String",
  "format_disk" : Boolean,
  "keep_instance_name" : Boolean,
  "is_edge_worker" : Boolean,
  "nodepool_id" : "String",
  "image_id" : "String",
  "cpu_policy" : "String",
  "user_data" : "String",
  "rds_instances" : [ "String" ],
  "runtime" : {
    "name" : "String",
    "version" : "String"
  },
  "tags" : [ {
    "key" : "String",
    "value" : "String"
  } ]
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c106f377e16f34eb1808d6b9362c9****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
instances	Array of String	Yes	i-2zed0sswuau6o89b****	The IDs of the ECS instances that you want to add.

Parameter	Type	Required	Example	Description
key_pair	String	Yes	secrity-key	The name of the key pair that is used to log to the ECS instances. You must set this parameter or the `login_password` parameter.
password	String	Yes	Hello1234	The Secure Shell (SSH) logon password that is used to log on to the ECS instances. You must set this parameter or the `key_pair` parameter. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. It cannot contain backward slashes (\) or double quotation marks ("). For security considerations, the password is encrypted during data transfer.

Parameter	Type	Required	Example	Description
format_disk	Boolean	No	false	Specifies whether to store the data of containers and images on a data disk. Valid values: • `true`: stores the data of containers and images on a data disk. • `false`: does not store the data of containers and images on a data disk. Default value: `false`. How to mount a data disk: • If the ECS instances have data disks mounted and the file system of the last data disk is not initialized, the system automatically formats the data disk to ext4. Then, the system mounts the data disk to /var/lib/docker and /var/lib/kubelet. • The system does not create and mount a new data disk if no data disk has been mounted to the ECS instances. **Note** If you mount a data disk to the ECS instances and write data to the data disk, the original data on the disk is erased. Back up data before you mount a data disk.
keep_instance_name	Boolean	No	true	Specifies whether to retain the names of the ECS instances. Valid values: • `true`: retains the instances names. • `false`: does not retain the instance names. Default value: `true`.

Parameter	Type	Required	Example	Description
is_edge_worker	Boolean	No	false	Specifies whether the instances that you want to add are Edge Node Service (ENS) nodes. Valid values: • `true`: The instances that you want to add are ENS nodes. • `false`: The instances that you want to add are not ENS nodes. Default value: `false`. **Note**: If the instances that you want to add are ENS nodes, you must set this parameter to `true`. This allows you to identify these ENS nodes.
nodepool_id	String	No	np615c0e0966124216a0412e10afe0****	The ID of the node pool to which the instances are added. If you do not set this parameter, the instances are added to a default node pool.
image_id	String	No	aliyun_2_1903_x64_20G_alibase_20200529.vhd	The ID of the custom image. If you do not set this parameter, the default system image is used. **Note**: If you specify a custom image, the custom image is used to deploy the operating systems on the system disks of the instances.

Parameter	Type	Required	Example	Description
cpu_policy	String	No	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used. Default value: `none`.
user_data	String	No	IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFDSyEi	The user-defined data. For more information, see the *User-defined data* chapter in the *ECS* documentation.
rds_instances	Array of String	No	rm-67yawhau****	The IDs of the Relational Database Service (RDS) instances.
runtime	runtime	No		The container runtime.
tags	Array of tag	No		The labels to be added to nodes. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with `aliyun`, `acs:`, `https://`, or `http://`.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "list" : [ {
    "code" : "String",
    "instanceId" : "String",
    "message" : "String"
  } ],
  "task_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
list	Array of list		The details of the added instances.
code	String	200	The code that indicates the task result.
instanceId	String	i-2ze0lgm3y6iylcbt****	The IDs of the added ECS instances.
message	String	successful	Indicates whether the ECS instances are added to the specified cluster.
task_id	String	T-5a544aff80282e39ea000039	The ID of the task.

Examples

Sample requests

```
POST /clusters/c106f377e16f34eb1808d6b9362c9****/attach HTTP/1.1
Content-Type:application/json
{
  "instances" : [ "i-2zed0sswuau6o89b****" ],
  "key_pair" : "secrity-key",
  "password" : "Hello1234",
  "format_disk" : false,
  "keep_instance_name" : true,
  "is_edge_worker" : false,
  "nodepool_id" : "np615c0e0966124216a0412e10afe0****",
  "image_id" : "aliyun_2_1903_x64_20G_alibase_20200529.vhd",
  "cpu_policy" : "none",
  "user_data" : "IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFDSyEi",
  "rds_instances" : [ "rm-67yawhau****" ],
  "runtime" : {
    "name" : "docker",
    "version" : "19.03.5"
  },
  "tags" : [ {
    "key" : "env",
    "value" : "prod"
  } ]
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<list>
    <code>200</code>
    <instanceId>i-2ze0lgm3y6iylcbt****</instanceId>
    <message>successful</message>
</list>
<task_id>T-5a544aff80282e39ea000039</task_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "list" : [ {
    "code" : "200",
    "instanceId" : "i-2ze0lgm3y6iylcbt****",
    "message" : "successful"
  } ],
  "task_id" : "T-5a544aff80282e39ea000039"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.4. DescribeClusterAttachScripts

Adds an existing instance to a specified Container Service cluster. This operation returns a unique executable script. You can run this script on an existing instance to add the instance to the specified cluster.

Request syntax

```
POST /clusters/ClusterId/attachscript HTTP/1.1
Content-Type:application/json
{
  "nodepool_id" : "String",
  "format_disk" : Boolean,
  "keep_instance_name" : Boolean,
  "rds_instances" : [ "String" ],
  "arch" : "String",
  "options" : "String"
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	ca375a93a3047 4552ad2a0ebe1 83e****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
nodepool_id	String	No	np1c9229d9be2 d432c93f77a88f ca0****	The ID of the node pool to which the existing instance is added. You can specify this parameter to add the existing instance to a specific node pool.

Parameter	Type	Required	Example	Description
format_disk	Boolean	No	false	Specifies whether to mount data disks to the existing instance when the instance is added to the cluster. You can add data disks to store the data of containers and images. Valid values: • `true`: mounts data disks to the existing instance. If you mount a data disk to the instance and write data to the data disk, the original data on the disk is erased. Back up data before you mount a data disk. • `false`: does not mount data disks to the existing instance. Default value: `false`. How to mount a data disk: • If the existing Elastic Compute Service (ECS) instance has data disks mounted and the file system of the last data disk is not initialized, the system automatically formats the data disk to ext4. Then, the system mounts the data disk to /var/lib/docker and /var/lib/kubelet. • The system does not create and mount a new data disk if no data disk has been mounted to the ECS instance.
keep_instance_name	Boolean	No	true	Specifies whether to retain the name of the existing instance when the instance is added to the cluster. If you do not retain the instance name, the instance is named in the `worker-k8s-for-cs-<clusterid>` format. Valid values: • `true`: retains the instance name. • `false`: does not retain the instance name. Default value: `true`.

Parameter	Type	Required	Example	Description
rds_instances	Array of String	No	rm-xxx	The names of the Relational Database Service (RDS) instances.
arch	String	No	amd64	The CPU architecture of the node. Valid values: `amd64`, `arm`, and `arm64`. Default value: `amd64`. **Note** This parameter is required if the existing instance is added to a managed edge Kubernetes cluster.
options	String	No	{\"enableIptables\": true,\"manageRuntime\": true,\"quiet\": true,\"allowedClusterAddons\": [\"kube-proxy\",\"flannel\",\"coredns\"]}	The connection configurations of the existing instance that you want to add. **Note** This parameter is required if the existing instance is added to a managed edge Kubernetes cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "result" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
	String	"wget http://aliacs-k8s-cn-hangzhou.oss-cn-hangzhou.aliyuncs.com/public/pkg/run/attach/1.12.6-aliyunedge.1/edgeadm -O edgeadm; chmod u+x edgeadm; ./edgeadm join --openapi-token=XXX --node-spec="{\"flannelIface\":\"eth0\",\"enableIptables\":true,\"assumeYes\":true,\"manageRuntime\":true,\"nodeNameStrategy\":\"hostname\",\"enabledAddons\":[\"kube-proxy\",\"flannel\",\"coredns\"]}""	The returned script that is used to add an existing instance to the specified cluster.

Examples

Sample requests

```
POST /clusters/ca375a93a30474552ad2a0ebe183e****/attachscript HTTP/1.1
Content-Type:application/json
{
  "nodepool_id" : "np1c9229d9be2d432c93f77a88fca0****",
  "format_disk" : false,
  "keep_instance_name" : true,
  "rds_instances" : [ "rm-xxx" ],
  "arch" : "amd64",
  "options" : "{\\\"enableIptables\\\": true,\\\"manageRuntime\\\": true,\\\"quiet\\\": true,\\\"allowedClusterAddons\\\": [\\\"kube-proxy\\\",\\\"flannel\\\",\\\"coredns\\\"]}"
}
```

Description of the sample request

```
When you add an existing instance to a managed edge Kubernetes cluster, you must set option
s and arch. The following content describes the parameters of options:
```
{
    "options":"{
        "allowedClusterAddons": The name of the component.
        "enableIptables": Specifies whether to enable iptables. Default value: true.
        "flannelIface": the network interface controller (NIC) that is used by the Flannel
plug-in. By default, this parameter is set to the name of the NIC that is specified in the
default route entry of the node.
        "gpuVersion": Specifies whether the node to be added is a GPU-accelerated node. By
default, this parameter is empty. Valid values: Nvidia_Tesla_T4, Nvidia_Tesla_P4, and Nvidi
a_Tesla_P100.
        "manageRuntime": Specifies whether to use edgeadm to install and check the runtime.
Default value: false.
        "nodeNameOverride": Specifies how the node is named. A pair of quotation marks ("")
indicates the host name is used as the node name. This is the default value. An asterisk (*
) indicates that a random string that contains six characters is used as the node name.The
string "*.XXX" indicates that a random string that is followed by a suffix is used as the n
ode name. The random string contains six characters.
        "quiet": Specifies whether to enable the silent installation mode.
    }
}
```
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<result>"wget http://aliacs-k8s-cn-hangzhou.oss-cn-hangzhou.aliyuncs.com/public/pkg/run/att
ach/1.12.6-aliyunedge.1/edgeadm -O edgeadm; chmod u+x edgeadm; ./edgeadm join --openapi-tok
en=XXX --node-spec="{\"flannelIface\":\"eth0\",\"enableIptables\":true,\"assumeYes\":true,\
"manageRuntime\":true,\"nodeNameStrategy\":\"hostname\",\"enabledAddons\":[\"kube-proxy\",\
"flannel\",\"coredns\"]}""</result>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "result" : "\"wget http://aliacs-k8s-cn-hangzhou.oss-cn-hangzhou.aliyuncs.com/public/pkg/
run/attach/1.12.6-aliyunedge.1/edgeadm -O edgeadm; chmod u+x edgeadm; ./edgeadm join --open
api-token=XXX --node-spec=\"{\\\"flannelIface\\\":\\\"eth0\\\",\\\"enableIptables\\\":true,
\\\"assumeYes\\\":true,\\\"manageRuntime\\\":true,\\\"nodeNameStrategy\\\":\\\"hostname\\\"
,\\\"enabledAddons\\\":[\\\"kube-proxy\\\",\\\"flannel\\\",\\\"coredns\\\"]}\"\""
}
```

Description of the sample response

```
If the cluster is not a managed edge Kubernetes cluster, the following script is returned:
"curl http://aliacs-k8s-cn-chengdu.oss-cn-chengdu-internal.aliyuncs.com/public/pkg/run/attach/1.16.9-aliyun.1/attach_node.sh | bash -s -- --node-name-mode nodeip --cms-enabled --cms-version 1.3.7 --openapi-token **** --addon-names flannel,csi-plugin,csi-provisioner,logtail-ds,ack-node-problem-detector,nginx-ingress-controller,kube-flannel-ds --cpu-policy none --node-cidr-mask 26 --node-port-range 30000-32767 --runtime docker --runtime-version 19.03.5"
If the cluster is a managed edge Kubernetes cluster, the following script is returned:
"wget http://aliacs-k8s-cn-hangzhou.oss-cn-hangzhou.aliyuncs.com/public/pkg/run/attach/1.12.6-aliyunedge.1/edgeadm -O edgeadm; chmod u+x edgeadm; ./edgeadm join --openapi-token=*** --node-spec="{\"flannelIface\":\"eth0\",\"enableIptables\":true,\"assumeYes\":true,\"manageRuntime\":true,\"nodeNameStrategy\":\"hostname\",\"enabledAddons\":[\"kube-proxy\",\"flannel\",\"coredns\"]}""
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5. Node pools

3.1.3.2.5.1. CreateClusterNodePool

Creates a node pool for a Container Service cluster.

Request syntax

```
POST /clusters/ClusterId/nodepools HTTP/1.1
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : Boolean,
    "max_instances" : Long,
    "min_instances" : Long,
    "type" : "String",
  },
  "kubernetes_config" : {
    "cms_enabled" : Boolean,
    "cpu_policy" : "String",
    "labels" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "runtime" : "String",
    "runtime_version" : "String",
    "taints" : [ {
      "key" : "String",
      "value" : "String",
      "effect" : "String"
    } ],
    "user_data" : "String"
  },
  "nodepool_info" : {
```

```
    "name" : "String",
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "String",
      "size" : Long,
      "encrypted" : "String",
      "auto_snapshot_policy_id" : "String"
    } ],
    "image_id" : "String",
    "instance_charge_type" : "String",
    "instance_types" : [ "String" ],
    "login_password" : "String",
    "platform" : "String",
    "rds_instances" : [ "String" ],
    "scaling_policy" : "String",
    "system_disk_category" : "String",
    "system_disk_size" : Long,
    "tags" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "vswitch_ids" : [ "String" ],
  },
  "tee_config" : {
    "tee_enable" : Boolean
  },
  "count" : Long
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c61da77e8bfbc4c4c999af2b51b65****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
auto_scaling	Object	No		The configuration of auto scaling.

Parameter	Type	Required	Example	Description
enable	Boolean	Yes	true	Specifies whether to enable auto scaling. Valid values: • `true`: enables auto scaling for the node pool. • `false`: disables auto scaling for the node pool. If you set the parameter to false, the `auto_scaling` parameter does not take effect. Default value: `false`.
max_instances	Long	Yes	10	The maximum number of Elastic Compute Service (ECS) instances in the scaling group.
min_instances	Long	Yes	1	The minimum number of ECS instances in the scaling group.
type	String	No	cpu	The type of instances that are specified for auto scaling. Valid values: • `cpu`: regular instance. • `gpu`: GPU-accelerated instance. • `gpushare`: instance that uses shared GPUs. • `spot`: preemptible instance. Default value: `cpu`.
kubernetes_config	Object	No		The configuration of the cluster.

Parameter	Type	Required	Example	Description
cms_enabled	Boolean	No	true	Specifies whether to install the CloudMonitor agent on ECS instances. After the CloudMonitor agent is installed on ECS instances, you can view monitoring information about the instances in the CloudMonitor console. We recommend that you install the CloudMonitor agent. Valid values: • `true`: installs the CloudMonitor agent on ECS instances. • `false`: does not install the CloudMonitor agent on ECS instances. Default value: `false`.
cpu_policy	String	No	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used. Default value: `none`.
labels	Array of tag	No		The labels of the cluster. You can add labels to the nodes in the cluster.
runtime	String	Yes	docker	The container runtime.
runtime_version	String	Yes	19.03.5	The version of the container runtime.
taints	Array of taint	No		The taints of the nodes in the cluster.

Parameter	Type	Required	Example	Description
user_data	String	No	dGhpcyBpcyBhIGV4YW1wbGU=	The user-defined data.
nodepool_info	Object	No		The configuration of the node pool.
name	String	Yes	cluster-demo	The name of the node pool.
scaling_group	Object	No		The configuration of the scaling group.
data_disks	Array of data_disk	No		The configurations of data disks that are mounted to the nodes in the node pool.
image_id	String	No	aliyun_2_1903_x64_20G_alibase_20200529.vhd	The ID of a custom image. By default, the system image is used.
instance_charge_type	String	Yes	PrePaid	The billing method of the nodes in the node pool. Valid values: • `PrePaid`: subscription. • `PostPaid`: pay-as-you-go. Default value: `PostPaid`.
instance_types	Array of String	Yes	ecs.d1ne.2xlarge	The instance types of the nodes in the node pool.
login_password	String	No	Hello1234	The Secure Shell (SSH) logon password. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters.

Parameter	Type	Required	Example	Description
platform	String	Yes	Linux	The release version of the operating system. Valid values: • `CentOS` • `AliyunLinux` • `Windows` • `WindowsCore` Default value: `AliyunLinux.`
rds_instances	Array of String	No	rds-****	The IDs of the Relational Database Service (RDS) instances.
scaling_policy	String	No	release	The scaling mode of the scaling group. Valid values: • `release` : the standard mode. Auto scaling is implemented by creating or releasing ECS instances based on the requested resources. • `recycle` : the swift mode. Auto scaling is implemented by creating, stopping, and starting ECS instances. This mode accelerates scaling activities. When an ECS instance is stopped, you are charged only the storage fees. This does not apply to ECS instances that use local disks. Default value: `release` .
system_disk_category	String	Yes	cloud_efficiency	The type of system disk that is specified for the nodes in the node pool. Valid values: • `cloud_efficiency` : ultra disk. • `cloud_ssd` : standard SSD. • `cloud_essd` : enhanced SSD. Default value: `cloud_efficiency.`

Parameter	Type	Required	Example	Description
system_disk_size	Long	Yes	120	The size of the system disk that is specified for the nodes in the node pool. Unit: GiB. Valid values: 40 to 500.
tags	Array	No		The labels of ECS instances. You can add labels to only ECS instances. The key of each label must be unique and cannot exceed 128 characters in length. Keys and values cannot start with aliyun or acs:. Keys and values cannot contain https:// or http://.
key	String	No	node-k-1	The key of the label.
value	String	No	node-v-1	The value of the label.
vswitch_ids	Array of String	Yes	vsw-wz9mfnhmssud6eicu****	The IDs of vSwitches.
tee_config	Object	No		The configuration of confidential computing.
tee_enable	Boolean	Yes	true	Specifies whether to enable confidential computing for the cluster.
count	Long	No	1	The number of nodes in the node pool.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "nodepool_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
nodepool_id	String	np31da1b38983f4511b490fc62108a****	The ID of the node pool.

Examples

Sample requests

```
POST /clusters/c61da77e8bfbc4c4c999af2b51b65****/nodepools HTTP/1.1
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : true,
    "max_instances" : 10,
    "min_instances" : 1,
    "type" : "cpu",
  },
  "kubernetes_config" : {
    "cms_enabled" : true,
    "cpu_policy" : "none",
    "labels" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "runtime" : "docker",
    "runtime_version" : "19.03.5",
    "taints" : [ {
      "key" : "key",
      "value" : "value",
      "effect" : "NoSchedule"
    } ],
    "user_data" : "dGhpcyBpcyBhIGV4YW1wbGU="
  },
  "nodepool_info" : {
    "name" : "cluster-demo",
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "cloud_ssd",
      "size" : 40,
      "encrypted" : "true",
      "auto_snapshot_policy_id" : "sp-2zej1nogjvovnz4z****"
    } ],
    "image_id" : "aliyun_2_1903_x64_20G_alibase_20200529.vhd",
    "instance_charge_type" : "PrePaid",
    "instance_types" : [ "ecs.d1ne.2xlarge" ],
    "login_password" : "Hello1234",
    "platform" : "Linux",
    "rds_instances" : [ "rds-***" ],
    "scaling_policy" : "release",
    "system_disk_category" : "cloud_efficiency",
    "system_disk_size" : 120,
    "tags" : [ {
```

```
      "key" : "node-k-1",
      "value" : "node-v-1"
    } ],
    "vswitch_ids" : [ "vsw-wz9mfnhmssud6eicu****" ],
  },
  "tee_config" : {
    "tee_enable" : true
  },
  "count" : 1
}
```

Description of the sample request

```
Create a node pool that supports auto scaling:
{
    "ClusterId":"c61da77e8bfbc4c4c999af2b51b65****",
    "nodepool_info":{
        "name":"autoScale-demo",
    },
    "scaling_group":{
        "vswitch_ids":[
            "vsw-wz9mfnhmssud6eic****"
        ],
        "system_disk_category":"cloud_efficiency",
        "system_disk_size":120,
        "data_disks":[
        ],
        "instance_types":[
            "ecs.t6-c1m2.large"
        ],
        "vpc_id":"vpc-wz984yvbd6lck22z3****",
        "tags":[
        ],
        "instance_charge_type":"PostPaid",
        "login_password":"****",
        "platform":"AliyunLinux",
        "image_id":"aliyun_2_1903_x64_20G_alibase_20200529.vhd",
        "rds_instances":[
        ],
        "scaling_policy":"release"
    },
    "kubernetes_config":{
        "cpu_policy":"none",
        "cms_enabled":false,
        "labels":[
            {
                "key":"workload_type",
                "value":"cpu"
            }
        ],
        "taints":[
        ],
        "user_data":"",
        "runtime":"docker",
        "runtime_version":"19.03.5"
    },
    "tee_config":{
        "tee_enable":true
    },
    "auto_scaling":{
        "enable":true,
        "max_instances":10,
        "min_instances":1,
        "type":"cpu"
    }
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<nodepool_id>np31da1b38983f4511b490fc62108a****</nodepool_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "nodepool_id" : "np31da1b38983f4511b490fc62108a****"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5.2. ScaleClusterNodePool

Scales out a node pool.

Request syntax

```
POST /clusters/ClusterId/nodepools/NodepoolId HTTP/1.1
Content-Type:application/json
{
  "count" : Long
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c23421cfa74454bc8b37163fd19af****	The ID of the cluster to which the node pool belongs.
NodepoolId	String	Yes	np31da1b38983f4511b490fc62108a****	The ID of the node pool.

Request body parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
count	Long	No	1	The number of nodes that you want to add to the node pool. You can add at most 500 nodes in one API call. The maximum number of nodes that can be added is limited by the quota of nodes in the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "task_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
task_id	String	T-5faa48fb31b6b8078d00****	The ID of the task.

Examples

Response example

```
POST /clusters/c23421cfa74454bc8b37163fd19af****/nodepools/np31da1b38983f4511b490fc62108a****
HTTP/1.1
Content-Type:application/json
{
  "count" : 1
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<task_id>T-5faa48fb31b6b8078d00****</task_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "task_id" : "T-5faa48fb31b6b8078d00****"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5.3. ModifyClusterNodePool

Updates the configuration of a node pool.

Request syntax

```
PUT /clusters/ClusterId/nodepools/NodepoolId HTTP/1.1
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : Boolean,
    "max_instances" : Long,
    "min_instances" : Long,
    "type" : "String"
  },
  "kubernetes_config" : {
    "cms_enabled" : Boolean,
    "cpu_policy" : "String",
    "labels" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "runtime" : "String",
    "runtime_version" : "String",
    "taints" : [ {
      "key" : "String",
      "value" : "String",
      "effect" : "String"
    } ],
    "user_data" : "String"
  },
  "nodepool_info" : {
    "name" : "String",
    "resource_group_id" : "String"
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "String",
      "size" : Long,
      "encrypted" : "String",
      "auto_snapshot_policy_id" : "String"
    } ],
    "instance_charge_type" : "String",
```

```
    "platform" : "String",
    "image_id" : "String",
    "instance_types" : [ "String" ],
    "login_password" : "String",
    "rds_instances" : [ "String" ],
    "scaling_policy" : "String",
    "system_disk_category" : "String",
    "system_disk_size" : Long,
    "tags" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "vswitch_ids" : [ "String" ],
  },
  "tee_config" : {
    "tee_enable" : Boolean
  },
  "update_nodes" : Boolean
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c23421cfa74454bc8b37163fd19af****	The ID of the cluster to which the node pool belongs.
NodepoolId	String	Yes	p31da1b38983f4511b490fc62108a****	The ID of the node pool.

Request body parameters

Parameter	Type	Required	Example	Description
auto_scaling	Object	No		The configuration of auto scaling.

Parameter	Type	Required	Example	Description
enable	Boolean	No	true	Specifies whether to enable auto scaling. Valid values: • `true`: enables auto scaling for the node pool. • `false`: disables auto scaling for the node pool. If you set this parameter to false, the `auto_scaling` parameter does not take effect. Default value: `false`.
max_instances	Long	No	10	The maximum number of Elastic Compute Service (ECS) instances.
min_instances	Long	No	2	The minimum number of ECS instances.
type	String	No	cpu	The type of instances that are specified for auto scaling. Valid values: • `cpu`: regular instance. • `gpu`: GPU-accelerated instance. • `gpushare`: instance that uses shared GPUs. • `spot`: preemptible instance. Default value: `cpu`.
kubernetes_config	Object	No		The configuration of the cluster.

Parameter	Type	Required	Example	Description
cms_enabled	Boolean	No	true	Specifies whether to install the CloudMonitor agent on ECS instances. After the CloudMonitor agent is installed on ECS instances, you can view monitoring information about the instances in the CloudMonitor console. We recommend that you install the CloudMonitor agent. Valid values: • `true`: installs the CloudMonitor agent on ECS instances. • `false`: does not install the CloudMonitor agent on ECS instances. Default value: `false`.
cpu_policy	String	No	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used. Default value: `none`.

Parameter	Type	Required	Example	Description
labels	Array of tag	No		The labels of nodes. You can add labels to the nodes in the cluster. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with `aliyun`, `acs:`, `https://`, or `http://`.
runtime	String	No	docker	The name of the container runtime.
runtime_version	String	No	19.03.5	The version of the container runtime.
taints	Array of taint	No		The taints to be added to the nodes in the node pool.
user_data	String	No	lyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFDSyEi	The user-defined data of the node pool. For more information, see the *User-defined data* chapter in the *ECS* documentation.
nodepool_info	Object	No		The configuration of the node pool.
name	String	No	default-nodepool	The name of the node pool. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
resource_group_id	String	No	rg-acfmyvw3wjm****	The ID of the resource group to which the node pool belongs.

Parameter	Type	Required	Example	Description
scaling_group	Object	No		The configuration of the scaling group.
data_disks	Array of data_disk	No		The configurations of the data disks that are mounted to the nodes in the node pool. You can mount 0 to 10 data disks. You can mount at most 10 data disks to the nodes in the node pool.
platform	String	No	AliyunLinux	The operating system. Valid values: • `AliyunLinux` • `CentOS` • `Windows` • `WindowsCore`
image_id	String	No	aliyun_2_1903_x64_20G_alibase_20200904.vhd	The ID of the custom image. You can call the `DescribeKubernetesVersionMetadata` operation to query the supported images. By default, the latest image is used.
instance_types	Array of String	No	ecs.c6.large	The instance types of the nodes in the node pool. For more information, see the *Instance types* chapter in *ECS User Guide*.
login_password	String	No	Hello1234	The Secure Shell (SSH) logon password. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters.
rds_instances	Array of String	No	rds-xxx	The IDs of the Relational Database Service (RDS) instances. After you specify the list of RDS instances, the ECS instances in the cluster are automatically added to the whitelist of the RDS instances.

Parameter	Type	Required	Example	Description
scaling_policy	String	No	release	The scaling mode of the scaling group. Valid values: • `release`: the standard mode. Auto scaling is implemented by creating or releasing ECS instances based on the requested resources. • `recycle`: the swift mode. Auto scaling is implemented by creating, stopping, and starting ECS instances. This mode accelerates scaling activities. When an ECS instance is stopped, you are charged only the storage fees. This does not apply to ECS instances that use local disks.
system_disk_category	String	No	cloud_efficiency	The type of system disk that is specified for the nodes in the node pool. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD. Default value: `cloud_ssd`.
system_disk_size	Long	No	120	The size of the system disk that is specified for the nodes in the node pool. Unit: GiB. Valid values: 20 to 500. The value of this parameter must be no less than the greater value between 20 and the image size. Default value: the greater value between 40 and the image size.

Parameter	Type	Required	Example	Description
tags	Array of tag	No		The labels of ECS instances. You can add labels to only ECS instances. The key of each label must be unique and cannot exceed 128 characters in length. Keys and values cannot start with aliyun, acs:, https://, or http://.
vswitch_ids	Array of String	No	vsw-wz9uwxhawmtzg7u9h****	The IDs of vSwitches.
tee_config	Object	No		The configuration of confidential computing.
tee_enable	Boolean	No	false	Specifies whether to enable confidential computing for the cluster. • `true`: enables confidential computing. • `false`: disables confidential computing. Default value: `false`.
update_nodes	Boolean	No	true	Specifies whether to update node information, such as labels and taints.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "task_id" : "String",
  "nodepool_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
task_id	String	T-5fd211e924e1d00787000293	The ID of the task.
nodepool_id	String	np737c3ac1ac684703b9e10673aa2c****	The ID of the node pool.

Examples

Sample requests

```
PUT /clusters/c23421cfa74454bc8b37163fd19af****/nodepools/p31da1b38983f4511b490fc62108a****
HTTP/1.1
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : true,
    "max_instances" : 10,
    "min_instances" : 2,
    "type" : "cpu"
  },
  "kubernetes_config" : {
    "cms_enabled" : true,
    "cpu_policy" : "none",
    "labels" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "runtime" : "docker",
    "runtime_version" : "19.03.5",
    "taints" : [ {
      "key" : "key",
      "value" : "value",
      "effect" : "NoSchedule"
    } ],
    "user_data" : "IyEvdXNyL2Jpbi9iYXNoCmVjaG8gIkhlbGxvIEFDSyEi"
  },
  "nodepool_info" : {
    "name" : "default-nodepool",
    "resource_group_id" : "rg-acfmyvw3wjm****"
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "cloud_ssd",
      "size" : 40,
      "encrypted" : "true",
      "auto_snapshot_policy_id" : "sp-2zej1nogjvovnz4z****"
    } ],
    "instance_charge_type" : "PostPaid",
    "platform" : "AliyunLinux",
    "image_id" : "aliyun_2_1903_x64_20G_alibase_20200904.vhd",
    "instance_types" : [ "ecs.c6.large" ],
```

```
    "login_password" : "Hello1234",
    "rds_instances" : [ "rds-xxx" ],
    "scaling_policy" : "release",
    "system_disk_category" : "cloud_efficiency",
    "system_disk_size" : 120,
    "tags" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "vswitch_ids" : [ "vsw-wz9uwxhawmtzg7u9h****" ],
  },
  "tee_config" : {
    "tee_enable" : false
  },
  "update_nodes" : true
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<task_id>T-5fd211e924e1d00787000293</task_id>
<nodepool_id>np737c3ac1ac684703b9e10673aa2c****</nodepool_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "task_id" : "T-5fd211e924e1d00787000293",
  "nodepool_id" : "np737c3ac1ac684703b9e10673aa2c****"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5.4. DescribeClusterNodePools

Queries node pools in a specified Container Service cluster.

Request syntax

```
GET /clusters/ClusterId/nodepools HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	cc0f87de0b8fb403f86e10e204f83****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "nodepools" : [ {
    "auto_scaling" : {
      "enable" : Boolean,
      "max_instances" : Long,
      "min_instances" : Long,
      "type" : "String"
    },
    "kubernetes_config" : {
      "cms_enabled" : Boolean,
      "cpu_policy" : "String",
      "labels" : [ {
        "key" : "String",
        "value" : "String"
      } ],
      "runtime" : "String",
      "runtime_version" : "String",
      "taints" : [ {
        "key" : "String",
        "value" : "String",
        "effect" : "String"
      } ],
      "user_data" : "String"
    },
    "nodepool_info" : {
      "created" : "String",
      "is_default" : Boolean,
      "name" : "String",
      "nodepool_id" : "String",
      "region_id" : "String",
      "resource_group_id" : "String",
      "type" : "String",
      "updated" : "String"
    },
    "scaling_group" : {
      "data_disks" : [ {
        "category" : "String",
        "size" : Long,
        "encrypted" : "String",
        "auto_snapshot_policy_id" : "String"
      } ],
      "image_id" : "String",
      "instance_charge_type" : "String",
```

```
      "instance_types" : [ "String" ],
      "platform" : "String",
      "ram_policy" : "String",
      "rds_instances" : [ "String" ],
      "scaling_group_id" : "String",
      "scaling_policy" : "String",
      "security_group_id" : "String",
      "system_disk_category" : "String",
      "system_disk_size" : Long,
      "tags" : [ {
        "key" : "String",
        "value" : "String"
      } ],
      "vswitch_ids" : [ "String" ],
      "login_password" : "String",
    },
    "status" : {
      "failed_nodes" : Long,
      "healthy_nodes" : Long,
      "initial_nodes" : Long,
      "offline_nodes" : Long,
      "removing_nodes" : Long,
      "serving_nodes" : Long,
      "state" : "String",
      "total_nodes" : Long
    },
    "tee_config" : {
      "tee_enable" : Boolean
    },
  } ]
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
nodepools	Array		The list of node pools in the cluster.
auto_scaling	Object		The configuration of auto scaling.
enable	Boolean	true	Indicates whether auto scaling is enabled. Valid values: • `true`: Auto scaling is enabled for the node pool. • `false`: Auto scaling is disabled for the node pool. If you set this parameter to `false`, the `auto_scaling` parameter does not take effect.

Parameter	Type	Example	Description
max_instances	Long	10	The maximum number of Elastic Compute Service (ECS) instances.
min_instances	Long	2	The minimum number of ECS instances.
type	String	cpu	The type of instances that are specified for auto scaling. Valid values: • `cpu`: regular instance. • `gpu`: GPU-accelerated instance. • `gpushare`: instance that uses shared GPUs. • `spot`: preemptible instance.
kubernetes_config	Object		The configuration of the cluster.
cms_enabled	Boolean	true	Indicates whether the CloudMonitor agent is installed on ECS instances. After the CloudMonitor agent is installed on ECS instances, you can view monitoring information about the instances in the CloudMonitor console. We recommend that you install the CloudMonitor agent. Valid values: • `true`: The CloudMonitor agent is installed on ECS instances. • `false`: The CloudMonitor agent is not installed on ECS instances.
cpu_policy	String	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used.

Parameter	Type	Example	Description
labels	Array of tag		The labels of nodes. You can add labels to the nodes in the cluster. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with `aliyun`, `acs:`, `https://`, or `http://`.
runtime	String	docker	The name of the container runtime.
runtime_version	String	19.03.5	The version of the container runtime.
taints	Array of taint		The taints that are added to nodes. Taints are added to nodes to prevent pods from being scheduled to inappropriate nodes. However, toleration rules allow pods to be scheduled to nodes with matching taints.
user_data	String	IyEvYmluL3NoCmVja G8gIkhlbGxvIEFD****	The user-defined data of the node pool. For more information, see the *User-defined data* chapter in the *ECS* documentation.
nodepool_info	Object		The information about the node pool.
created	String	2020-09-27T19:14:09.156823496+08:00	The time when the node pool was created.
is_default	Boolean	true	Indicates whether the node pool is a default node pool. By default, a cluster has only one default node pool. Valid values: • `true`: The node pool is a default node pool. • `false`: The node pool is not a default node pool.

Parameter	Type	Example	Description
name	String	default-nodepool	The name of the node pool. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
nodepool_id	String	np615c0e0966124216a0412e10afe0****	The ID of the node pool.
region_id	String	cn-beijing	The ID of the region where the node pool is deployed.
resource_group_id	String	rg-acfmyvw3wjm****	The ID of the resource group to which the node pool belongs.
type	String	ess	The type of node pool.
updated	String	2020-09-27T20:37:46+08:00	The time when the node pool was updated.
scaling_group	Object		The configuration of the scaling group.
data_disks	Array of data_disk		The configurations of the data disks that are mounted to the nodes in the node pool. Each configuration includes disk type and disk size.
image_id	String	aliyun_2_1903_x64_20G_alibase_20200529.vhd	The ID of the custom image. You can call the `DescribeKubernetesVersionMetadata` operation to query the supported images.
instance_charge_type	String	PostPaid	The billing method of the nodes in the node pool. Valid values: • `PrePaid`: subscription. • `PostPaid`: pay-as-you-go.
instance_types	Array of String	ecs.n4.large	The instance types of nodes.

Parameter	Type	Example	Description
platform	String	AliyunLinux	The release version of the operating system. Valid values: • `CentOS` • `AliyunLinux` • `Windows` • `WindowsCore`
ram_policy	String	KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****	The name of the Resource Access Management (RAM) role. The RAM role is assigned to the worker nodes that are created on ECS instances.
rds_instances	Array of String	rm-xxx	The Relational Database Service (RDS) instances.
scaling_group_id	String	asg-2ze8n5qw4atggut8****	The ID of the scaling group.
scaling_policy	String	release	The scaling mode of the scaling group. Valid values: • `release`: the standard mode. Auto scaling is implemented by creating or releasing ECS instances based on the requested resources. • `recycle`: the swift mode. Auto scaling is implemented by creating, stopping, and starting ECS instances. This mode accelerates scaling activities. When an ECS instance is stopped, you are charged only the storage fees. This does not apply to ECS instances that use local disks.
security_group_id	String	sg-2ze1iuk12m2sb4c4****	The ID of the security group to which the instances of the cluster belong.
system_disk_category	String	cloud_efficiency	The type of system disk that is specified for the nodes in the node pool. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD.

Parameter	Type	Example	Description
system_disk_size	Long	120	The size of the system disk that is specified for the nodes in the node pool. Unit: GiB. Valid values: 20 to 500.
tags	Array of tag		The labels of ECS instances. You can add labels to only ECS instances. The key of each label must be unique and cannot exceed 128 characters in length. Keys and values cannot start with aliyun, acs:, https://, or http://.
vswitch_ids	Array of String	vsw-2ze3ds0mdip0hdz8i****	The IDs of vSwitches.
login_password	String	******	The Secure Shell (SSH) logon password. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. For security considerations, the password is encrypted during data transfer.
status	Object		The status of the node pool.
failed_nodes	Long	0	The number of failed nodes.
healthy_nodes	Long	3	The number of healthy nodes.
initial_nodes	Long	0	The number of nodes that are being created.
offline_nodes	Long	0	The number of offline nodes.
removing_nodes	Long	0	The number of nodes that are being removed.
serving_nodes	Long	3	The number of running nodes.

Parameter	Type	Example	Description
state	String	active	The state of the node pool. Valid values: • `active`: The node pool is activated. • `scaling`: The node pool is being scaled. • `removing`: The node pool is removing nodes. • `deleting`: The node pool is being deleted. • `updating`: The node pool is being updated.
total_nodes	Long	3	The number of nodes in the node pool.
tee_config	Object		The configuration of confidential computing.
tee_enable	Boolean	false	Indicates whether confidential computing is enabled for the cluster. Valid values: • `true`: Confidential computing is enabled for the cluster. • `false`: Confidential computing is disabled for the cluster.

Examples

Sample requests

```
GET /clusters/cc0f87de0b8fb403f86e10e204f83****/nodepools HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<nodepools>
    <auto_scaling>
        <enable>true</enable>
        <max_instances>10</max_instances>
        <min_instances>2</min_instances>
        <type>cpu</type>
    </auto_scaling>
    <kubernetes_config>
        <cms_enabled>true</cms_enabled>
        <cpu_policy>none</cpu_policy>
```

```
        <labels>
            <key>env</key>
            <value>prod</value>
        </labels>
        <runtime>docker</runtime>
        <runtime_version>19.03.5</runtime_version>
        <taints>
            <key>key</key>
            <value>value</value>
            <effect>NoSchedule</effect>
        </taints>
        <user_data>IyEvYmluL3NoCmVjaG8gIkhlbGxvIEFD****</user_data>
    </kubernetes_config>
    <nodepool_info>
        <created>2020-09-27T19:14:09.156823496+08:00</created>
        <is_default>true</is_default>
        <name>default-nodepool</name>
        <nodepool_id>np615c0e0966124216a0412e10afe0****</nodepool_id>
        <region_id>cn-beijing</region_id>
        <resource_group_id>rg-acfmyvw3wjm****</resource_group_id>
        <type>ess</type>
        <updated>2020-09-27T20:37:46+08:00</updated>
    </nodepool_info>
    <scaling_group>
        <data_disks>
            <category>cloud_ssd</category>
            <size>40</size>
            <encrypted>true</encrypted>
            <auto_snapshot_policy_id>sp-2zej1nogjvovnz4z****</auto_snapshot_policy_id>
        </data_disks>
        <image_id>aliyun_2_1903_x64_20G_alibase_20200529.vhd</image_id>
        <instance_charge_type>PostPaid</instance_charge_type>
        <instance_types>ecs.n4.large</instance_types
        <platform>AliyunLinux</platform>
        <ram_policy>KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****</ram_policy>
        <rds_instances>rm-xxx</rds_instances>
        <scaling_group_id>asg-2ze8n5qw4atggut8****</scaling_group_id>
        <scaling_policy>release</scaling_policy>
        <security_group_id>sg-2ze1iuk12m2sb4c4****</security_group_id>
        <system_disk_category>cloud_efficiency</system_disk_category>
        <system_disk_size>120</system_disk_size>
        <tags>
            <key>env</key>
            <value>prod</value>
        </tags>
        <vswitch_ids>vsw-2ze3ds0mdip0hdz8i****</vswitch_ids>
        <login_password>******</login_password>
    </scaling_group>
    <status>
        <failed_nodes>0</failed_nodes>
        <healthy_nodes>3</healthy_nodes>
        <initial_nodes>0</initial_nodes>
        <offline_nodes>0</offline_nodes>
        <removing_nodes>0</removing_nodes>
```

```
        <serving_nodes>3</serving_nodes>
        <state>active</state>
        <total_nodes>3</total_nodes>
    </status>
    <tee_config>
        <tee_enable>false</tee_enable>
    </tee_config>
</nodepools>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "nodepools" : [ {
    "auto_scaling" : {
      "enable" : true,
      "max_instances" : 10,
      "min_instances" : 2,
      "type" : "cpu"
    },
    "kubernetes_config" : {
      "cms_enabled" : true,
      "cpu_policy" : "none",
      "labels" : [ {
        "key" : "env",
        "value" : "prod"
      } ],
      "runtime" : "docker",
      "runtime_version" : "19.03.5",
      "taints" : [ {
        "key" : "key",
        "value" : "value",
        "effect" : "NoSchedule"
      } ],
      "user_data" : "IyEvYmluL3NoCmVjaG8gIkhlbGxvIEFD****"
    },
    "nodepool_info" : {
      "created" : "2020-09-27T19:14:09.156823496+08:00",
      "is_default" : true,
      "name" : "default-nodepool",
      "nodepool_id" : "np615c0e0966124216a0412e10afe0****",
      "region_id" : "cn-beijing",
      "resource_group_id" : "rg-acfmyvw3wjm****",
      "type" : "ess",
      "updated" : "2020-09-27T20:37:46+08:00"
    },
    "scaling_group" : {
      "data_disks" : [ {
        "category" : "cloud_ssd",
        "size" : 40,
        "encrypted" : "true",
        "auto_snapshot_policy_id" : "sp-2zej1nogjvovnz4z****"
      } ],
```

```
      "image_id" : "aliyun_2_1903_x64_20G_alibase_20200529.vhd",
      "instance_charge_type" : "PostPaid",
      "instance_types" : [ "ecs.n4.large" ],
      "platform" : "AliyunLinux",
      "ram_policy" : "KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****",
      "rds_instances" : [ "rm-xxx" ],
      "scaling_group_id" : "asg-2ze8n5qw4atggut8****",
      "scaling_policy" : "release",
      "security_group_id" : "sg-2ze1iuk12m2sb4c4****",
      "system_disk_category" : "cloud_efficiency",
      "system_disk_size" : 120,
      "tags" : [ {
        "key" : "env",
        "value" : "prod"
      } ],
      "vswitch_ids" : [ "vsw-2ze3ds0mdip0hdz8i****" ],
      "login_password" : "******",
    },
    "status" : {
      "failed_nodes" : 0,
      "healthy_nodes" : 3,
      "initial_nodes" : 0,
      "offline_nodes" : 0,
      "removing_nodes" : 0,
      "serving_nodes" : 3,
      "state" : "active",
      "total_nodes" : 3
    },
    "tee_config" : {
      "tee_enable" : false
    },
  } ]
}
```


Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5.5. DescribeClusterNodePoolDetail

Queries the details of a specified node pool.

Request syntax

```
GET /clusters/ClusterId/nodepools/NodepoolId HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c23421cfa74454bc8b37163fd19af****	The ID of the cluster to which the node pool belongs.
NodepoolId	String	Yes	np31da1b38983f4511b490fc62108a****	The ID of the node pool.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : Boolean,
    "max_instances" : Long,
    "min_instances" : Long,
    "type" : "String"
  },
  "kubernetes_config" : {
    "cms_enabled" : Boolean,
    "cpu_policy" : "String",
    "labels" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "runtime" : "String",
    "runtime_version" : "String",
    "taints" : [ {
      "key" : "String",
      "value" : "String",
      "effect" : "String"
    } ],
    "user_data" : "String"
  },
  "nodepool_info" : {
    "created" : "String",
    "is_default" : Boolean,
    "name" : "String",
    "nodepool_id" : "String",
    "region_id" : "String",
    "resource_group_id" : "String",
    "type" : "String",
    "updated" : "String"
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "String",
      "size" : Long,
      "encrypted" : "String",
      "auto_snapshot_policy_id" : "String"
    } ]
```

```
    } ],
    "image_id" : "String",
    "instance_charge_type" : "String",
    "instance_types" : [ "String" ],
    "platform" : "String",
    "ram_policy" : "String",
    "rds_instances" : [ "String" ],
    "scaling_group_id" : "String",
    "scaling_policy" : "String",
    "security_group_id" : "String",
    "system_disk_category" : "String",
    "system_disk_size" : Long,
    "tags" : [ {
      "key" : "String",
      "value" : "String"
    } ],
    "vswitch_ids" : [ "String" ],
    "login_password" : "String",
  },
  "status" : {
    "failed_nodes" : Long,
    "healthy_nodes" : Long,
    "initial_nodes" : Long,
    "offline_nodes" : Long,
    "removing_nodes" : Long,
    "serving_nodes" : Long,
    "state" : "String",
    "total_nodes" : Long
  },
  "tee_config" : {
    "tee_enable" : Boolean
  },
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
auto_scaling	Object		The configuration of auto scaling.
enable	Boolean	true	Indicates whether auto scaling is enabled for the node pool. • `true`: Auto scaling is enabled for the node pool. • `false`: Auto scaling is disabled for the node pool. If you set this parameter to false, the `auto_scaling` parameter does not take effect.

Parameter	Type	Example	Description
max_instances	Long	10	The maximum number of Elastic Compute Service (ECS) instances.
min_instances	Long	1	The minimum number of ECS instances.
type	String	cpu	The type of instances that are specified for auto scaling. Valid values: • `cpu`: regular instance. • `gpu`: GPU-accelerated instance. • `gpushare`: instance that uses shared GPUs. • `spot`: preemptible instance.
kubernetes_config	Object		The configuration of the cluster.
cms_enabled	Boolean	true	Indicates whether the CloudMonitor agent is installed on ECS instances. After the CloudMonitor agent is installed on ECS instances, you can view monitoring information about the instances in the CloudMonitor console. We recommend that you install the CloudMonitor agent. Valid values: • `true`: The CloudMonitor agent is installed on ECS instances. • `false`: The CloudMonitor agent is not installed on ECS instances.
cpu_policy	String	none	The CPU policy. The following policies are supported if the cluster version is 1.12.6 or later. • `static`: This policy allows pods with specific resource characteristics on the node to be granted with enhanced CPU affinity and exclusivity. • `none`: This policy indicates that the default CPU affinity is used.

Parameter	Type	Example	Description
labels	Array of tag		The labels of nodes. You can add labels to the nodes in the cluster. Labeling rules: • Each label consists of a case-sensitive key-value pair. You can add up to 20 labels. • When you add a label, you must specify a unique key but you can leave the value empty. A key cannot exceed 64 characters in length and a value cannot exceed 128 characters in length. Keys and values cannot start with `aliyun`, `acs:`, `https://`, or `http://`.
runtime	String	docker	The name of the container runtime.
runtime_version	String	19.03.5	The version of the container runtime.
taints	Array of taint		The taints that are added to nodes. Taints are added to nodes to prevent pods from being scheduled to inappropriate nodes. However, toleration rules allow pods to be scheduled to nodes with matching taints. For more information, see taint-and-toleration.
user_data	String	lyEvYmluL3NoCmVjaG8gIkhlbGxvIEFDSyEi	The user-defined data of the node pool. For more information, see the *User-defined data* chapter in the *ECS* documentation.
nodepool_info	Object		The configuration of the node pool.
created	String	2020-09-27T19:14:09.156823496+08:00	The time when the node pool was created.
is_default	Boolean	true	Indicates whether the node pool is a default node pool. By default, a cluster has only one default node pool. Valid values: `true`: The node pool is a default node pool. `false`: The node pool is not a default node pool.

Parameter	Type	Example	Description
name	String	default-nodepool	The name of the node pool. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
nodepool_id	String	np615c0e0966124216a0412e10afe0****	The ID of the node pool.
region_id	String	cn-beijing	The ID of the region where the node pool is deployed.
resource_group_id	String	rg-acfmyvw3wjmb****	The ID of the resource group to which the node pool belongs.
type	String	ess	The type of node pool.
updated	String	2020-09-27T20:37:46+08:00	The time when the node pool was updated.
scaling_group	Object		The configuration of the scaling group.
data_disks	Array of data_disk		The configurations of the data disks that are mounted to the nodes in the node pool. Each configuration includes disk type and disk size.
image_id	String	aliyun_2_1903_x64_20G_alibase_20200529.vhd	The ID of the custom image. You can call the `DescribeKubernetesVersionMetadata` operation to query the supported images.
instance_types	Array of String	ecs.n4.large	The instance types of nodes.
platform	String	AliyunLinux	The release version of the operating system. Valid values: • `CentOS` • `AliyunLinux` • `Windows` • `WindowsCore`

Parameter	Type	Example	Description
ram_policy	String	KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****	The name of the Resource Access Management (RAM) role. The RAM role is assigned to the worker nodes that are created on ECS instances.
rds_instances	Array of String	rm-xxx	The Relational Database Service (RDS) instances.
scaling_group_id	String	asg-2zeieod8giqmov7z****	The ID of the scaling group.
scaling_policy	String	release	The scaling mode of the scaling group. Valid values: • `release`: the standard mode. Auto scaling is implemented by creating or releasing ECS instances based on the requested resources. • `release`: the swift mode. Auto scaling is implemented by creating, stopping, and starting ECS instances. This mode accelerates scaling activities. When an ECS instance is stopped, you are charged only the storage fees. This does not apply to ECS instances that use local disks.
security_group_id	String	sg-2ze60ockeekspl3d****	The ID of the security group to which the instances of the cluster belong.
system_disk_category	String	cloud_efficiency	The type of system disk that is specified for the nodes in the node pool. Valid values: • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD.
system_disk_size	Long	120	The size of the system disk that is specified for the nodes in the node pool. Unit: GiB. Valid values: 20 to 500.

Parameter	Type	Example	Description
tags	Array of tag		The labels of ECS instances. You can add labels to only ECS instances. The key of each label must be unique and cannot exceed 128 characters in length. Keys and values cannot start with `aliyun`, `acs:`, `https://`, or `http://`.
vswitch_ids	Array of String	vsw-2ze3ds0mdip0hdz8i****	The IDs of vSwitches.
login_password	String	********	The Secure Shell (SSH) logon password. The password must be 8 to 30 characters in length, and must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. For security considerations, the password is encrypted during data transfer.
status	Object		The status of the node pool.
failed_nodes	Long	0	The number of failed nodes.
healthy_nodes	Long	3	The number of healthy nodes.
initial_nodes	Long	0	The number of nodes that are being created.
offline_nodes	Long	0	The number of offline nodes.
removing_nodes	Long	0	The number of nodes that are being removed.
serving_nodes	Long	3	The number of running nodes.

Parameter	Type	Example	Description
state	String	active	The state of the node pool. Valid values: • `active`: The node pool is activated. • `scaling`: The node pool is being scaled. • `removing`: The node pool is removing nodes. • `deleting`: The node pool is being deleted. • `updating`: The node pool is being updated.
total_nodes	Long	3	The total number of nodes in the node pool.
tee_config	Object		The configuration of confidential computing.
tee_enable	Boolean	false	Indicates whether confidential computing is enabled for the cluster. • `true`: Confidential computing is enabled for the cluster. • `false`: Confidential computing is disabled for the cluster.

Examples

Sample requests

```
GET /clusters/c23421cfa74454bc8b37163fd19af****/nodepools/np31da1b38983f4511b490fc62108a***
* HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<auto_scaling>
    <enable>true</enable>
    <max_instances>10</max_instances>
    <min_instances>1</min_instances>
    <type>cpu</type>
</auto_scaling>
<kubernetes_config>
    <cms_enabled>true</cms_enabled>
    <cpu_policy>none</cpu_policy>
    <labels>
```

```
        <key>env</key>
        <value>prod</value>
    </labels>
    <runtime>docker</runtime>
    <runtime_version>19.03.5</runtime_version>
    <taints>
        <key>key</key>
        <value>value</value>
        <effect>NoSchedule</effect>
    </taints>
    <user_data>IyEvYmluL3NoCmVjaG8gIkhlbGxvIEFDSyEi</user_data>
</kubernetes_config>
<nodepool_info>
    <created>2020-09-27T19:14:09.156823496+08:00</created>
    <is_default>true</is_default>
    <name>default-nodepool</name>
    <nodepool_id>np615c0e0966124216a0412e10afe0****</nodepool_id>
    <region_id>cn-beijing</region_id>
    <resource_group_id>rg-acfmyvw3wjmb****</resource_group_id>
    <type>ess</type>
    <updated>2020-09-27T20:37:46+08:00</updated>
</nodepool_info>
<scaling_group>
    <data_disks>
        <category>cloud_ssd</category>
        <size>40</size>
        <encrypted>true</encrypted>
        <auto_snapshot_policy_id>sp-2zej1nogjvovnz4z****</auto_snapshot_policy_id>
    </data_disks>
    <image_id>aliyun_2_1903_x64_20G_alibase_20200529.vhd</image_id>
    <instance_charge_type>PostPaid</instance_charge_type>
    <instance_types>ecs.n4.large</instance_types>
    <platform>AliyunLinux</platform>
    <ram_policy>KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****</ram_policy>
    <rds_instances>rm-xxx</rds_instances>
    <scaling_group_id>asg-2zeieod8giqmov7z****</scaling_group_id>
    <scaling_policy>release</scaling_policy>
    <security_group_id>sg-2ze60ockeekspl3d****</security_group_id>
    <system_disk_category>cloud_efficiency</system_disk_category>
    <system_disk_size>120</system_disk_size>
    <tags>
        <key>env</key>
        <value>prod</value>
    </tags>
    <vswitch_ids>vsw-2ze3ds0mdip0hdz8i****</vswitch_ids>
    <login_password>********</login_password>
</scaling_group>
<status>
    <failed_nodes>0</failed_nodes>
    <healthy_nodes>3</healthy_nodes>
    <initial_nodes>0</initial_nodes>
    <offline_nodes>0</offline_nodes>
    <removing_nodes>0</removing_nodes>
    <serving_nodes>3</serving_nodes>
```

```
    <state>active</state>
    <total_nodes>3</total_nodes>
</status>
<tee_config>
    <tee_enable>false</tee_enable>
</tee_config>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "auto_scaling" : {
    "enable" : true,
    "max_instances" : 10,
    "min_instances" : 1,
    "type" : "cpu"
  },
  "kubernetes_config" : {
    "cms_enabled" : true,
    "cpu_policy" : "none",
    "labels" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "runtime" : "docker",
    "runtime_version" : "19.03.5",
    "taints" : [ {
      "key" : "key",
      "value" : "value",
      "effect" : "NoSchedule"
    } ],
    "user_data" : "IyEvYmluL3NoCmVjaG8gIkhlbGxvIEFDSyEi"
  },
  "nodepool_info" : {
    "created" : "2020-09-27T19:14:09.156823496+08:00",
    "is_default" : true,
    "name" : "default-nodepool",
    "nodepool_id" : "np615c0e0966124216a0412e10afe0****",
    "region_id" : "cn-beijing",
    "resource_group_id" : "rg-acfmyvw3wjmb****",
    "type" : "ess",
    "updated" : "2020-09-27T20:37:46+08:00"
  },
  "scaling_group" : {
    "data_disks" : [ {
      "category" : "cloud_ssd",
      "size" : 40,
      "encrypted" : "true",
      "auto_snapshot_policy_id" : "sp-2zej1nogjvovnz4z****"
    } ],
    "image_id" : "aliyun_2_1903_x64_20G_alibase_20200529.vhd",
    "instance_charge_type" : "PostPaid",
    "instance types" : [ "ecs.n4.large" ],
```

```
    "platform" : "AliyunLinux",
    "ram_policy" : "KubernetesWorkerRole-021dc54f-929b-437a-8ae0-34c24d3e****",
    "rds_instances" : [ "rm-xxx" ],
    "scaling_group_id" : "asg-2zeieod8giqmov7z****",
    "scaling_policy" : "release",
    "security_group_id" : "sg-2ze60ockeekspl3d****",
    "system_disk_category" : "cloud_efficiency",
    "system_disk_size" : 120,
    "tags" : [ {
      "key" : "env",
      "value" : "prod"
    } ],
    "vswitch_ids" : [ "vsw-2ze3ds0mdip0hdz8i****" ],
    "login_password" : "********",
  },
  "status" : {
    "failed_nodes" : 0,
    "healthy_nodes" : 3,
    "initial_nodes" : 0,
    "offline_nodes" : 0,
    "removing_nodes" : 0,
    "serving_nodes" : 3,
    "state" : "active",
    "total_nodes" : 3
  },
  "tee_config" : {
    "tee_enable" : false
  },
}
```


Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.2.5.6. DeleteClusterNodepool

Deletes a node pool.

Request syntax

```
DELETE /clusters/ClusterId/nodepools/NodepoolId HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c61da77e8bfbc4c4c999af2b51b65****	The ID of the cluster.

Parameter	Type	Required	Example	Description
NodepoolId	String	Yes	np30db56bcac7843dca90b999c8928****	The ID of the node pool.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
DELETE /clusters/c61da77e8bfbc4c4c999af2b51b65****/nodepools/np30db56bcac7843dca90b999c8928
**** HTTP/1.1
Content-Type:application/json
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.3. Templates

3.1.3.3.1. CreateTemplate

Creates an orchestration template.

Request syntax

```
POST /templates HTTP/1.1
Content-Type:application/json
{
  "name" : "String",
  "template" : "String",
  "tags" : "String",
  "description" : "String",
  "template_type" : "String"
}
```

Request parameters

Request body parameters

Parameter	Type	Required	Example	Description
name	String	Yes	service-account-template	The name of the template. The name must be 1 to 63 characters in length, and can contain digits, letters, and hyphens (-). It cannot start with a hyphen.
template	String	Yes	apiVersion: v1\nkind: ServiceAccount\nmetadata:\n name: test-sa	The template content in the YAML format.
tags	String	No	test	The label of the template.
description	String	No	this is test	The description of the template.
template_type	String	No	kubernetes	The type of template. You can set the parameter to a custom value. • If you set the parameter to `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If you set the parameter to `compose`, the template is not displayed in the console. We recommend that you set the parameter to `kubernetes`. Default value: `compose`.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "template_id" : "String"
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
template_id	String	ba1fe77b-b01e-4640-b77e-8f1b80e3e3cf	The ID of the template.

Examples

Sample requests

```
POST /templates HTTP/1.1
Content-Type:application/json
{
  "name" : "service-account-template",
  "template" : "apiVersion: v1\\nkind: ServiceAccount\\nmetadata:\\n  name: test-sa",
  "tags" : "test",
  "description" : "this is test",
  "template_type" : "kubernetes"
}
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<template_id>ba1fe77b-b01e-4640-b77e-8f1b80e3e3cf</template_id>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "template_id" : "ba1fe77b-b01e-4640-b77e-8f1b80e3e3cf"
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.3.2. DeleteTemplate

Deletes an orchestration template.

Request syntax

```
DELETE /templates/TemplateId HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
TemplateId	String	Yes	20663627-81ee-4cfe-9b69-c96fcb84a674	The ID of the template.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
DELETE /templates/20663627-81ee-4cfe-9b69-c96fcb84a674
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.3.3. DescribeTemplates

Queries all orchestration templates.

Request syntax

```
GET /templates?template_type=String&page_num=Long&page_size=Long HTTP/1.1
Content-Type:application/json
```

Request parameters

Request query parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
template_type	String	Yes	kubernetes	The type of template. You can set this parameter to a custom value. • If you set the parameter to `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If you set the parameter to `compose`, the template is not displayed on the Templates page in the console. Default value: `kubernetes`.
page_num	Long	No	1	The number of the page to return. Default value: 1.
page_size	Long	No	10	The number of entries to return on each page. Default value: 10.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "templates" : [ {
    "acl" : "String",
    "id" : "String",
    "name" : "String",
    "description" : "String",
    "tags" : "String",
    "template" : "String",
    "template_type" : "String",
    "created" : "String",
    "updated" : "String",
    "template_with_hist_id" : "String"
  } ],
  "page_info" : {
    "page_number" : Long,
    "page_size" : Long,
    "total_count" : Long
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
templates	Array of template		The list of returned templates.
acl	String	private	The access control policy of the template. Valid values: • `private`: The template is private. • `public`: The template is public. • `shared`: The template can be shared. Default value: `private`.
id	String	874ec485-e7e6-4373-8a3b-47bde8ae789f	The ID of the template.
name	String	webserver	The name of the template.
description	String	a web server	The description of the template.
tags	String	kubernetes	The label of the template. By default, the value is the name of the template.
template	String	apiVersion: apps/v1\nkind: Deployment\nmetadata:\n name: nginx-deployment-basic\n labels:\n app: nginx\nspec:\n replicas: 2\n selector:\n matchLabels:\n app: nginx\n template:\n metadata:\n labels:\n app: nginx\n spec:\n containers:\n - name: nginx\n image: busybox:latest\n ports:\n - containerPort: 80	The template content in the YAML format.

Parameter	Type	Example	Description
template_type	String	kubernetes	The type of template. You can set this parameter to a custom value. • If you set the parameter to `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If you set the parameter to `compose`, the template is displayed on the Container Service - Swarm page in the console. However, Container Service for Swarm is deprecated.
created	String	2020-06-10T16:30:16+08:00	The time when the template was created.
updated	String	2020-06-10T16:30:16+08:00	The time when the template was updated.
template_with_hist_id	String	ad81d115-7c8b-47e7-a222-9c28d7f6e588	The ID of the parent template. The value of `template_with_hist_id` is the same for each template version. This allows you to manage different template versions.
page_info	Object		The pagination details.
page_number	Long	20	The page number of the returned page.
page_size	Long	3	The maximum number of entries returned per page.
total_count	Long	50	The total number of entries returned.

Examples

Sample requests

```
GET /templates?template_type=kubernetes&page_num=1&page_size=10 HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<templates>
    <acl>private</acl>
    <id>874ec485-e7e6-4373-8a3b-47bde8ae789f</id>
    <name>webserver</name>
    <description>a web server</description>
    <tags>kubernetes</tags>
    <template>apiVersion: apps/v1\nkind: Deployment\nmetadata:\n  name: nginx-deployment-basic\n  labels:\n    app: nginx\nspec:\n  replicas: 2\n  selector:\n    matchLabels:\n      app: nginx\n  template:\n    metadata:\n      labels:\n        app: nginx\n    spec:\n      containers:\n      - name: nginx\n        image: busybox:latest\n        ports:\n        - containerPort: 80</template>
    <template_type>kubernetes</template_type>
    <created>2020-06-10T16:30:16+08:00</created>
    <updated>2020-06-10T16:30:16+08:00</updated>
    <template_with_hist_id>ad81d115-7c8b-47e7-a222-9c28d7f6e588</template_with_hist_id>
</templates>
<page_info>
    <page_number>20</page_number>
    <page_size>3</page_size>
    <total_count>50</total_count>
</page_info>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "templates" : [ {
    "acl" : "private",
    "id" : "874ec485-e7e6-4373-8a3b-47bde8ae789f",
    "name" : "webserver",
    "description" : "a web server",
    "tags" : "kubernetes",
    "template" : "apiVersion: apps/v1\\nkind: Deployment\\nmetadata:\\n  name: nginx-deployment-basic\\n  labels:\\n    app: nginx\\nspec:\\n  replicas: 2\\n  selector:\\n    matchLabels:\\n      app: nginx\\n  template:\\n    metadata:\\n      labels:\\n        app: nginx\\n    spec:\\n      containers:\\n      - name: nginx\\n        image: busybox:latest\\n        ports:\\n        - containerPort: 80",
    "template_type" : "kubernetes",
    "created" : "2020-06-10T16:30:16+08:00",
    "updated" : "2020-06-10T16:30:16+08:00",
    "template_with_hist_id" : "ad81d115-7c8b-47e7-a222-9c28d7f6e588"
  } ],
  "page_info" : {
    "page_number" : 20,
    "page_size" : 3,
    "total_count" : 50
  }
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.3.4. DescribeTemplateAttribute

Queries the details of a specified orchestration template.

Request syntax

```
GET /templates/TemplateId?template_type=String HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
TemplateId	String	Yes	874ec485-e7e6-4373-8a3b-47bde8a****	The ID of the template.

Request query parameters

Parameter	Type	Required	Example	Description
template_type	String	No	kubernetes	The type of template. The value can be a custom value. • If the value is `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If the value is `compose`, the template is displayed on the Container Service - Swarm page in the console. However, Container Service for Swarm is deprecated. • If the value of the parameter is not `kubernetes`, the template is not displayed on the Templates page in the console. We recommend that you set the parameter to `kubernetes`. Default value: `kubernetes`.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
[ {
  "id" : "String",
  "acl" : "String",
  "name" : "String",
  "template" : "String",
  "template_type" : "String",
  "description" : "String",
  "tags" : "String",
  "template_with_hist_id" : "String",
  "created" : "String",
  "updated" : "String"
} ]
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
	Array of template_info		The details of the queried template.
id	String	72d20cf8-a533-4ea9-a10d-e7630d3d****	The ID of the template. When you update a template, a new template ID is generated.
acl	String	private	The access control policy of the template.
name	String	web	The name of the template.
template	String	apiVersion: V1\n***	The template content in the YAML format.

Parameter	Type	Example	Description
template_type	String	kubernetes	The type of template. The value can be a custom value. • If the value is `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If the value is `compose`, the template is displayed on the Container Service - Swarm page in the console. However, Container Service for Swarm is deprecated. • If the value of the parameter is not `kubernetes`, the template is not displayed on the Templates page in the console. We recommend that you set the parameter to `kubernetes`. Default value: `kubernetes`.
description	String	test template	The description of the template.
tags	String	sa	The label of the template.
template_with_hist_id	String	874ec485-e7e6-4373-8a3b-47bde8ae****	The unique ID of the template. The value remains unchanged after the template is updated.
created	String	2020-09-16T19:21:29+08:00	The time when the template was created.
updated	String	2020-09-16T19:21:29+08:00	The time when the template was updated.

Examples

Sample requests

```
GET /templates/874ec485-e7e6-4373-8a3b-47bde8a****?template_type=kubernetes HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<0>
    <id>72d20cf8-a533-4ea9-a10d-e7630d3d****</id>
    <acl>private</acl>
    <name>web</name>
    <template>apiVersion: V1\n***</template>
    <template_type>kubernetes</template_type>
    <description>test template</description>
    <tags>sa</tags>
    <template_with_hist_id>874ec485-e7e6-4373-8a3b-47bde8ae****</template_with_hist_id>
    <created>2020-09-16T19:21:29+08:00</created>
    <updated>2020-09-16T19:21:29+08:00</updated>
</0>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
[ {
  "id" : "72d20cf8-a533-4ea9-a10d-e7630d3d****",
  "acl" : "private",
  "name" : "web",
  "template" : "apiVersion: V1\\n***",
  "template_type" : "kubernetes",
  "description" : "test template",
  "tags" : "sa",
  "template_with_hist_id" : "874ec485-e7e6-4373-8a3b-47bde8ae****",
  "created" : "2020-09-16T19:21:29+08:00",
  "updated" : "2020-09-16T19:21:29+08:00"
} ]
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.3.5. UpdateTemplate

Updates an orchestration template.

Request syntax

```
PUT /templates/TemplateId HTTP/1.1
Content-Type:application/json
{
  "description" : "String",
  "name" : "String",
  "tags" : "String",
  "template" : "String",
  "template_type" : "String"
}
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
TemplateId	String	Yes	72d20cf8-a533-4ea9-a10d-e7630d3d2708	The ID of the template.

Request body parameters

Parameter	Type	Required	Example	Description
description	String	No	web server cluster	The description of the template.
name	String	No	webserver01	The name of the template.
tags	String	No	web	The label of the template.
template	String	No	apiVersion: apps/v1\\nkind: Deployment\\nmetadata:\\n name: nginx-deployment-basic\\n labels:\\n app: nginx\\nspec:\\n replicas: 2\\n selector:\\n matchLabels:\\n app: nginx\\n template:\\n metadata:\\n labels:\\n app: nginx\\n spec:\\n containers:\\n - name: nginx\\n image: busybox:latest\\n ports:\\n - containerPort: 8080	The template content in the YAML format.

Parameter	Type	Required	Example	Description
template_type	String	No	kubernetes	The type of template. You can set this parameter to a custom value. • If you set the parameter to `kubernetes`, the template is displayed on the Templates page in the Container Service console. • If you set the parameter to `compose`, the template is displayed on the Container Service - Swarm page in the console. However, Container Service for Swarm is deprecated.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
PUT /templates/72d20cf8-a533-4ea9-a10d-e7630d3d2708 HTTP/1.1
Content-Type:application/json
{
  "description" : "web server cluster",
  "name" : "webserver01",
  "tags" : "web",
  "template" : "apiVersion: apps/v1\\\\nkind: Deployment\\\\nmetadata:\\\\n  name: nginx-deployment-basic\\\\n  labels:\\\\n    app: nginx\\\\nspec:\\\\n  replicas: 2\\\\n  selector:\\\\n    matchLabels:\\\\n      app: nginx\\\\n  template:\\\\n    metadata:\\\\n      labels:\\\\n        app: nginx\\\\n    spec:\\\\n      containers:\\\\n      - name: nginx\\\\n image: busybox:latest\\\\n        ports:\\\\n        - containerPort: 8080",
  "template_type" : "kubernetes"
}
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4. Add-ons

3.1.3.4.1. InstallClusterAddons

Installs a component in a specified Container Service cluster.

Request syntax

```
POST /clusters/ClusterId/components/install HTTP/1.1
Content-Type:application/json
[ {
  "name" : "String",
  "version" : "String",
  "config" : "String"
} ]
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
	Array	No		The request body parameters.
name	String	Yes	ags-metrics-collector	The name of the component that you want to install.
version	String	Yes	v1.0.0.2-cc3b2d6-aliyun	The version of the component. **Note** You can call the DescribeClusterAddonsVersion operation to query the version of the component. For more information, see DescribeClusterAddonsVersion.

Parameter	Type	Required	Example	Description
config	String	No	{\"IngressDashboardEnabled\":\"true\",\"sls_project_name\":\"your_sls_project_name\"}"}	The configuration of the component.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /clusters/c82e6987e2961451182edacd74faf****/components/install HTTP/1.1
Content-Type:application/json
[ {
  "name" : "ags-metrics-collector",
  "version" : "v1.0.0.2-cc3b2d6-aliyun",
  "config" : "{\\\"IngressDashboardEnabled\\\":\\\"true\\\",\\\"sls_project_name\\\":\\\"yo
ur_sls_project_name\\\"}\"}"
} ]
```

Description of the sample request

```
POST /clusters/c3fb96524f9274b4495df0f12a6b5****/components/install?RegionId=cn-hangzhou --
header "Content-Type=application/json;" --body '[{"name":"ack-node-problem-detector"}]'
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4.2. DescribeAddons

Queries the details of the components that are installed in a specified Container Service cluster.

Request syntax

```
GET /clusters/components/metadata?region=String&cluster_type=String HTTP/1.1
Content-Type:application/json
```

Request parameters

Request query parameters

Parameter	Type	Required	Example	Description
region	String	Yes	cn-beijing	The ID of the region where the cluster is deployed.
cluster_type	String	No	Kubernetes	The type of cluster. Valid values: • `Kubernetes`: dedicated Kubernetes cluster. • `ManagedKubernetes`: managed edge Kubernetes cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "ComponentGroups" : [ {
    "group_name" : "String",
    "items" : [ {
      "name" : "String"
    } ]
  } ],
  "StandardComponents" : {
    "key" : {
      "name" : "String",
      "version" : "String",
      "description" : "String",
      "required" : "String",
      "disabled" : Boolean
    }
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
ComponentGroups	Array of ComponentGroup		The list of the returned components.
group_name	String	storage	The name of the component group.
items	Array of item		The names of the components in the component group.
name	String	flexvolume	The name of the component.
StandardComponents	Map		Standard components.
	object		The details of the standard components.
name	String	ack-arena	The name of the component.
version	String	0.5.0	The version of the component.
description	String	test	The description of the component.
required	String	false	Indicates whether the component is required in a Container Service cluster. Valid values: • `true`: The component is required and must be installed when a cluster is created. • `false`: The component is optional. After a cluster is created, you can go to the Add-ons page to install the component.

Parameter	Type	Example	Description
disabled	Boolean	false	Indicates whether the automatic installation of the component is disabled. By default, some optional components, such as components for logging and Ingresses, are installed when a cluster is created. You can set this parameter to disable the automatic installation of a component. Valid values: • `true`: disables the automatic installation of the component. • `false`: allows the automatic installation of the component.

Examples

Sample requests

```
GET /clusters/components/metadata?region=cn-beijing    &cluster_type=kubernetes HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<StandardComponents>
    <cloud-controller-manager>
        <name>cloud-controller-manager</name>
        <version>v1.9.3.339-g9830b58-aliyun</version>
        <disabled>false</disabled>
        <required>true</required>
        <description>name: Cloud Controller Manager introduction: Using Cloud Controller Ma
nager to create load balancers for k8s applications and manage node route entries doc:en: h
ttps://www.alibabacloud.com/help/doc-detail/94925.htm</description>
    </cloud-controller-manager>
    <csi-plugin>
        <name>csi-plugin</name>
        <version>v1.16.9.43-f36bb540-aliyun</version>
        <disabled>false</disabled>
        <required>false</required>
        <description>csi-plugin</description>
    </csi-plugin>
</StandardComponents>
<ComponentGroups>
    <group_name>storage</group_name>
    <items>
        <name>flexvolume</name>
    </items>
    <items>
        <name>alicloud-disk-controller</name>
```

```
    </items>
    <items>
        <name>csi-plugin</name>
    </items>
    <items>
        <name>csi-provisioner</name>
    </items>
</ComponentGroups>
<ComponentGroups>
    <group_name>network</group_name>
    <items>
        <name>kube-flannel-ds</name>
    </items>
    <items>
        <name>terway</name>
    </items>
    <items>
        <name>terway-eni</name>
    </items>
    <items>
        <name>terway-eniip</name>
    </items>
    <items>
        <name>nginx-ingress-controller</name>
    </items>
    <items>
        <name>coredns</name>
    </items>
    <items>
        <name>managed-kube-proxy</name>
    </items>
</ComponentGroups>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "StandardComponents" : {
    "cloud-controller-manager" : {
      "name" : "cloud-controller-manager",
      "version" : "v1.9.3.339-g9830b58-aliyun",
      "disabled" : false,
      "required" : "true",
      "description" : "name: Cloud Controller Manager introduction: Using Cloud Controller
Manager to create load balancers for k8s applications and manage node route entries doc:en:
https://www.alibabacloud.com/help/doc-detail/94925.htm"
    },
    "csi-plugin" : {
      "name" : "csi-plugin",
      "version" : "v1.16.9.43-f36bb540-aliyun",
      "disabled" : false,
      "required" : "false",
      "description" : "csi-plugin"
    }
  },
  "ComponentGroups" : [ {
    "group_name" : "storage",
    "items" : [ {
      "name" : "flexvolume"
    }, {
      "name" : "alicloud-disk-controller"
    }, {
      "name" : "csi-plugin"
    }, {
      "name" : "csi-provisioner"
    } ]
  }, {
    "group_name" : "network",
    "items" : [ {
      "name" : "kube-flannel-ds"
    }, {
      "name" : "terway"
    }, {
      "name" : "terway-eni"
    }, {
      "name" : "terway-eniip"
    }, {
      "name" : "nginx-ingress-controller"
    }, {
      "name" : "coredns"
    }, {
      "name" : "managed-kube-proxy"
    } ]
  } ]
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4.3. DescribeClusterAddonsVersion

Queries the details of all components that are installed in a specified Container Service cluster.

Request syntax

```
GET /clusters/ClusterId/components/version HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c82e6987e2961451182edacd74faf****	The ID of the cluster.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "key" : {
    "component_name" : "String",
    "version" : "String",
    "next_version" : "String",
    "changed" : "String",
    "can_upgrade" : Boolean,
    "policy" : "String",
    "ready_to_upgrade" : "String",
    "exist" : Boolean,
    "required" : Boolean,
    "message" : "String",
    "value" : "String"
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
	Map		The response body parameters.

Parameter	Type	Example	Description
	Object		The details of the component.
component_name	String	ack-node-problem-detector	The name of the component.
version	String	1.2.1	The current version of the component.
next_version	String	1.2.1	The version to which the component can be upgraded.
changed	String	false	Indicates whether the component was upgraded. Valid values: • `true`: The component was upgraded. • `false`: The component was not upgraded.
can_upgrade	Boolean	false	Indicates whether the component is upgradable. Valid values: • `true`: The component is upgradable. • `false`: The component is not upgradable.
policy	String	overwrite	The upgrade policy of the component. • `overwrite`: The component configurations of the later version overwrite those of the earlier version. Default value: `overwrite`.
ready_to_upgrade	String	false	Indicates whether the component meets the upgrade conditions. Valid values: • `true`: The component meets the upgrade conditions. • `false`: The component does not meet the upgrade conditions.

Parameter	Type	Example	Description
exist	Boolean	true	Indicates whether the component was installed. Valid values: • `true`: The component was installed. • `false`: The component was not installed.
required	Boolean	false	Indicates whether the component is required in a Container Service cluster. Valid values: • `true`: The component is required in a Container Service cluster. • `false`: The component is not required in a Container Service cluster.
message	String	A plug-in that detects exceptions and reports them to the Kubernetes event center.	Additional information about whether the component is upgradable.
value	String	npd:\n # Custom monitor definitions to add to Node Problem Detector ****	The custom parameter setting. When you install a component, you can customize parameter settings for the component.

Examples

Sample requests

```
GET /clusters/c82e6987e2961451182edacd74faf****/components/version HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<ack-node-problem-detector>
    <exist>true</exist>
    <component_name>ack-node-problem-detector</component_name>
    <can_upgrade>false</can_upgrade>
    <ready_to_upgrade>false</ready_to_upgrade>
    <message>A plug-in that detects node exceptions and reports them to the Kubernetes even
t center.</message>
    <version>1.2.1</version>
    <value>npd:
  # Custom monitor definitions to add to Node Problem Detector ****</value>
    <required>false</required>
    <next_version>1.2.1</next_version>
    <changed>false</changed>
    <policy>overwrite</policy>
</ack-node-problem-detector>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "ack-node-problem-detector" : {
    "exist" : "true",
    "component_name" : "ack-node-problem-detector",
    "can_upgrade" : "false",
    "ready_to_upgrade" : "false",
    "message": "A plug-in that detects node exceptions and reports them to the Kubernetes e
vent center.",
    "version" : "1.2.1",
    "value" : "npd:\n  # Custom monitor definitions to add to Node Problem Detector ****",
    "required" : "false",
    "next_version" : "1.2.1",
    "changed" : "false",
    "policy" : "overwrite"
  }
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4.4. DescribeClusterAddonsUpgradeStatus

Queries the upgrade status of the specified components in a Container Service cluster.

Request syntax

```
GET /clusters/[ClusterId]/components/upgradestatus?componentIds=["String"] HTTP/1.1
Content-Type:application/json
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c23421cfa74454bc8b37163fd19af****	The ID of the cluster.

Request query parameters

Parameter	Type	Required	Example	Description
componentIds	Array of String	No	metric-server	The names of the components that you want to query.

Response syntax

```
HTTP/1.1 200
Content-Type:application/json
{
  "key" : {
    "addon_info" : {
      "component_name" : "String",
      "version" : "String",
      "ready_to_upgrade" : "String"
    },
    "tasks" : {
      "created_at" : "String",
      "finished_at" : "String",
      "status" : "String",
      "is_canceled" : Boolean
    }
  }
}
```

Response parameters

Response body parameters

Parameter	Type	Example	Description
	Map		The returned data.
	Object		The details of the upgrade status of the queried components.

Parameter	Type	Example	Description
addon_info	Object		The information about the component.
component_name	String	cloud-controller-manager	The name of the component.
version	String	v1.9.3.340-g9830b58-aliyun	The current version of the component.
ready_to_upgrade	String	true	Indicates whether the component is upgradable. Valid values: • `true`: The component is upgradable. • `false`: The component is not upgradable.
tasks	Object		The details of the upgrade task.
created_at	String	2020-12-28T17:00:50Z	The beginning time of the task.
finished_at	String	2020-12-28T17:05:36Z	The end time of the task.
status	String	Success	The state of the upgrade task.
is_canceled	Boolean	false	Indicates whether the upgrade task was canceled. Valid values: • `true`: The upgrade task was canceled. • `false`: The upgrade task was not canceled.

Examples

Sample requests

```
GET /clusters/[ClusterId]/components/upgradestatus?componentIds=["metric-server"] HTTP/1.1
Content-Type:application/json
```

Sample success responses

`XML` format

```
HTTP/1.1 200 OK
Content-Type:application/xml
<cloud-controller-manager>
    <tasks>
        <created_at>2020-12-28T17:01:55Z</created_at>
        <finished_at>2020-12-28T17:05:11Z</finished_at>
        <is_canceled>false</is_canceled>
        <status>Success</status>
    </tasks>
    <addon_info>
        <component_name>cloud-controller-manager</component_name>
        <version>v1.9.3.340-g9830b58-aliyun</version>
        <ready_to_upgrade>true</ready_to_upgrade>
    </addon_info>
</cloud-controller-manager>
<metric-server>
    <tasks>
        <created_at>2020-12-28T17:00:32Z</created_at>
        <finished_at>2020-12-28T17:05:54Z</finished_at>
        <is_canceled>false</is_canceled>
        <status>Success</status>
    </tasks>
    <addon_info>
        <component_name>metric-server</component_name>
        <version/>
        <ready_to_upgrade>true</ready_to_upgrade>
    </addon_info>
</metric-server>
```

`JSON` format

```
HTTP/1.1 200 OK
Content-Type:application/json
{
  "cloud-controller-manager" : {
    "tasks" : {
      "created_at" : "2020-12-28T17:01:55Z",
      "finished_at" : "2020-12-28T17:05:11Z",
      "is_canceled" : false,
      "status" : "Success"
    },
    "addon_info" : {
      "component_name" : "cloud-controller-manager",
      "version" : "v1.9.3.340-g9830b58-aliyun",
      "ready_to_upgrade" : "true"
    }
  },
  "metric-server" : {
    "tasks" : {
      "created_at" : "2020-12-28T17:00:32Z",
      "finished_at" : "2020-12-28T17:05:54Z",
      "is_canceled" : false,
      "status" : "Success"
    },
    "addon_info" : {
      "component_name" : "metric-server",
      "version" : "",
      "ready_to_upgrade" : "true"
    }
  }
}
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4.5. UpgradeClusterAddons

Upgrades a specified component of a Container Service cluster to the required version.

Request syntax

```
POST /clusters/ClusterId/components/upgrade HTTP/1.1
Content-Type:application/json
[ {
  "component_name" : "String",
  "next_version" : "String",
  "version" : "String"
} ]
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	cf4299b79b3e34226abfdc80a4bda****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
	Array	No		The request parameters.
component_name	String	Yes	coredns	The name of the component that you want to upgrade.
next_version	String	Yes	1.6.7	The version to which the component can be upgraded. You can call `DescribeClusterAddonsVersion` to query the version to which the component can be upgraded.
version	String	Yes	v1.6.2	The current version of the component.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /clusters/cf4299b79b3e34226abfdc80a4bda****/components/upgrade HTTP/1.1
Content-Type:application/json
[ {
  "component_name" : "coredns",
  "next_version" : "1.6.7",
  "version" : "v1.6.2"
} ]
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.4.6. UnInstallClusterAddons

Uninstalls components from a specified Container Service cluster.

Request syntax

```
POST /clusters/ClusterId/components/uninstall HTTP/1.1
Content-Type:application/json
[ {
  "name" : "String"
} ]
```

Request parameters

Request path parameters

Parameter	Type	Required	Example	Description
ClusterId	String	Yes	c5b5e80b0b64a4bf6939d2d8fbbc5****	The ID of the cluster.

Request body parameters

Parameter	Type	Required	Example	Description
	Array	No		The list of components that you want to uninstall. The list is an array.
name	String	No	ack-node-problem-detector	The name of the component.

Response syntax

```
HTTP/1.1 200 OK
```

Response parameters

No response parameters.

Examples

Sample requests

```
POST /clusters/c5b5e80b0b64a4bf6939d2d8fbbc5****/components/uninstall HTTP/1.1
Host:cs.aliyuncs.com
Content-Type:application/json
[ {
  "name" : "ack-node-problem-detector"
} ]
```

Sample success responses

`JSON` format

```
HTTP/1.1 200 OK
```

Error codes

You can check further details of error codes. For more information, see Error codes.

3.1.3.5. Commonly used parameters

addon

Configurations of cluster components.

Parameter	Type	Example	Description
name	String	nginx-ingress-controller	The name of a component.
config	String	{\"IngressSlbNetworkType\":\"internet\"}	The configuration of a component.

Parameter	Type	Example	Description
disabled	Boolean	false	Specifies whether a component is automatically installed in a newly created cluster. In addition to the required components, some optional components, such as Log Service components, are also installed when you create a cluster. You can set this parameter to disable the automatic installation of an optional component. You can install the component in the console or by calling the API after the cluster is created. Valid values: • `true`: disables the automatic installation of a component. • `false`: allows the automatic installation of a component.

data_disk

Configurations of data disks that are mounted to nodes.

Parameter	Type	Example	Description

Parameter	Type	Example	Description
category	String	cloud_ssd	The type of data disk. Valid values: • `cloud`: basic disk. • `cloud_efficiency`: ultra disk. • `cloud_ssd`: standard SSD. • `cloud_essd`: enhanced SSD. Default value: `cloud_efficiency`.
size	Long	40	The size of a data disk. Unit: GiB. Valid values: 40 to 32768. Default value: `120`.
encrypted	String	true	Specifies whether to encrypt a data disk. Valid values: • `true`: encrypts the data disk. • `false`: does not encrypt the data disk. Default value: `false`.
auto_snapshot_policy_id	String	sp-2zej1nogjvovnz4z****	The ID of an automatic snapshot policy. Automatic backup is performed for disks based on the specified automatic snapshot policy. By default, this parameter is empty. This indicates that automatic backup is disabled.

runtime

Configurations of container runtimes.

Parameter	Type	Example	Description
name	String	docker	The name of a container runtime. The following types of runtimes are supported by Container Service. • `Sandboxed-Container.runv` : runs sandboxed containers and provides improved isolation for application containers. • `docker` . • `containerd` . Default value: `docker` .
version	String	19.03.5	The version of a container runtime. By default, the latest version is used.

tag

Configurations of labels.

Parameter	Type	Example	Description
key	String	env	The `key` of a label.
value	String	prod	The `value` of a label.

taint

Configurations of node taints.

Parameter	Type	Example	Description
key	String	key	The `key` of a taint.
value	String	value	The `value` of a taint.
effect	String	NoSchedule	The scheduling policy. Valid values: • `NoSchedule`: Pods that do not tolerate this taint are not scheduled to nodes with this taint. This policy affects only the scheduling process and takes effect for only pods to be scheduled. Scheduled pods are not affected. • `NoExecute`: Pods that do not tolerate this taint are evicted after this taint is added to the node. • `PreferNoSchedule`: a preferable policy on pods. Scheduled pods are not affected. If this taint is added to a node, the system tries not to schedule pods that do not tolerate this taint to the node. Default value: `NoSchedule`.

3.1.3.6. Error codes

This topic describes the error codes that are returned when you fail to call API operations of Container Service for Kubernetes (ACK).

Error code	Error message	Description
ErrorRegionConfigNotFound?	region (%s) dockerVersion (%s) config not found in our records	The error message returned because the specified container version is unavailable in the current region.
ErrorValidateParameters	nvalid CIDR, 192.168.X.0/24 or 172.18.X.0/24 ~ 172.31.X.0/24 are accepted	The error message returned because the specified request parameters that are used to manage to the ACK cluster are invalid.
ErrorInvalidInstanceType	instanceType (%s) invalid	The error message returned because the specified instance type is invalid.
ErrorInitClusterTask	init cluster task failed	The error message returned because the ACK cluster is failed to be initialized.
ErrorClusterNotFound	cluster (%s) not found in our records	The error message returned because the specified cluster does not exist.
ErrorGenerateShorTermAccessKeys	N/A	The error message returned because an error has occurred when the system attempted to retrieve the AccessKey information.
ErrorMissingClusterName	N/A	The error message returned because the cluster name is missing from the request parameters.
502	N/A	The error message returned because the current request failed. Refresh the page or try again later.
LB_SLB_HTTPS_PORT_MUST_CREATE_FIRST	N/A	The error message returned because an SSL certificate must be created and specified before you configure the HTTPS listening port for the Server Load Balancer (SLB) instance.
HOST_NOT_FOUND	N/A	The error message returned because the specified host is not found.

Error code	Error message	Description
ROUTING_INVALID_DOMAIN	N/A	The error message returned because the specified URL that is used by the service contains an invalid domain name.
ErrorClusterNameAlreadyExist	N/A	The error message returned because the specified cluster name already exists. Modify the cluster name and try again.
ErrorMissingClusterID	N/A	The error message returned because the cluster ID is missing from the request parameters.
CLUSTER_IMAGE_NEEDED	N/A	The error message returned because an image must be specified for the ACK cluster.
LB_HOST_PORT_NOT_SPECIFIED	N/A	The error message returned because a host port that is mapped to the container port must be specified when you configure the SLB instance.
403	N/A	The error message returned because you are not authorized to perform the specified operation. If you use a Resource Access Management (RAM) user, contact the owner of the Alibaba Cloud account to authorize the RAM user.
504	N/A	The error message returned because the internal gateway timed out.
PROJECT_NAME_EXIST	N/A	The error message returned because the specified application name already exists.
ROUTING_DUPLICATE_COMBO	N/A	The error message returned because the specified URL exists. Check whether the URL is used by another service of the ACK cluster.
CONTAINER_NOT_FOUND	N/A	The error message returned because the specified container does not exist.

Error code	Error message	Description
InternalError	N/A	The error message returned because an internal service error has occurred. Try again later.
ErrorCheckAcl	N/A	The error message returned because the specified operation is not supported when the ACK cluster is in the current state.
ErrorNotSupport	N/A	The error message returned because the cluster scale-in operation is not supported.
PROJECT_VERSION_NEEDED	N/A	The error message returned because the application version must be specified.
ROUTING_CONVERT_TO_PORT_FAILED	N/A	The error message returned because the port that is used by the service is failed to be parsed.
SERVER_ERROR_CODE	N/A	The error message returned because the service is busy. Refresh the service and try again.
ROUTING_CONTEXT_ROOT_TOO_LONG	N/A	The error message returned because the length of the specified path in the URL that is used by the service exceeds the upper limit.
CLUSTER_RAMAK_INVLIAD	N/A	The error message returned because the specified AccessKey pair of the ACK cluster is invalid. Activate the RAM service and request another AccessKey pair.
ServiceUnavailable	N/A	The error message returned because the service is temporarily unavailable due to a brief exception.
ErrorQuerySecurityGroup	N/A	The error message returned because the system failed to query the security group.
LB_INVLIAD_PROTOCOL	N/A	The error message returned because the specified protocol of the listening port is invalid when you configure the SLB instance.

Error code	Error message	Description
ROUTING_INVALID_CONTEXT_ROOT	N/A	The error message returned because the specified path in the URL that is used by the service is invalid.
ROUTING_DOMAIN_NAME_TOO_LONG	N/A	The error message returned because the length of the domain name in the URL that is used by the service exceeds the upper limit.
505	N/A	The error message returned because the specified HTTP version is not supported.
ErrorMissingIP	N/A	The error message returned because the IP address is missing from the request parameters.
ErrorAttachInstance	N/A	The error message returned because the specified instance failed to be manually added.
LB_SLB_NAME_OR_ID_NOT_FOUND	N/A	The error message returned because the specified name and ID of the SLB instance cannot be found.
ErrorInvalidNodeId	N/A	The error message returned because the specified node ID in the request parameters is invalid.
503	N/A	The error message returned because the current request failed. Refresh the page or try again later.
LB_INVLIAD_CONTAINER_PORT	N/A	The error message returned because the specified container port is invalid when you configure the SLB instance.
ErrorInvalidClusterName	N/A	The error message returned because the format of the specified cluster name is invalid.
ErrorNoAttachEcsInstance	N/A	The error message returned because the manually added instance is invalid.
ErrorCheckClusterStatus	N/A	The error message returned because the specified ACK cluster exists.

Error code	Error message	Description
LB_SLB_SHARED_BETWEEN_SERVICES	N/A	The error message returned because different services cannot share the same SLB instance when you configure the SLB instance.
InvalidParameter	N/A	The error message returned because the specified parameter is invalid.
ErrorUpdateClusterName	N/A	The error message returned because the ACK cluster name failed to be updated.
ROUTING_FULLY_QUALIFIED_DOMAIN_NAME_NEEDED	N/A	The error message returned because the URL that is used by the HTTPS service must be a fully qualified domain name.
ErrorQueryRegionConfig	N/A	The error message returned because the configurations that are specified in the request to create an ACK cluster are invalid.
ErrorMissingInstanceID	N/A	The error message returned because the instance ID is missing from the request parameters.
ROUTING_COMBO_ALREADY_EXIST	N/A	The error message returned because the specified URL has been used by another service of the ACK cluster.

4.Auto Scaling (ESS)

4.1. Developer Guide

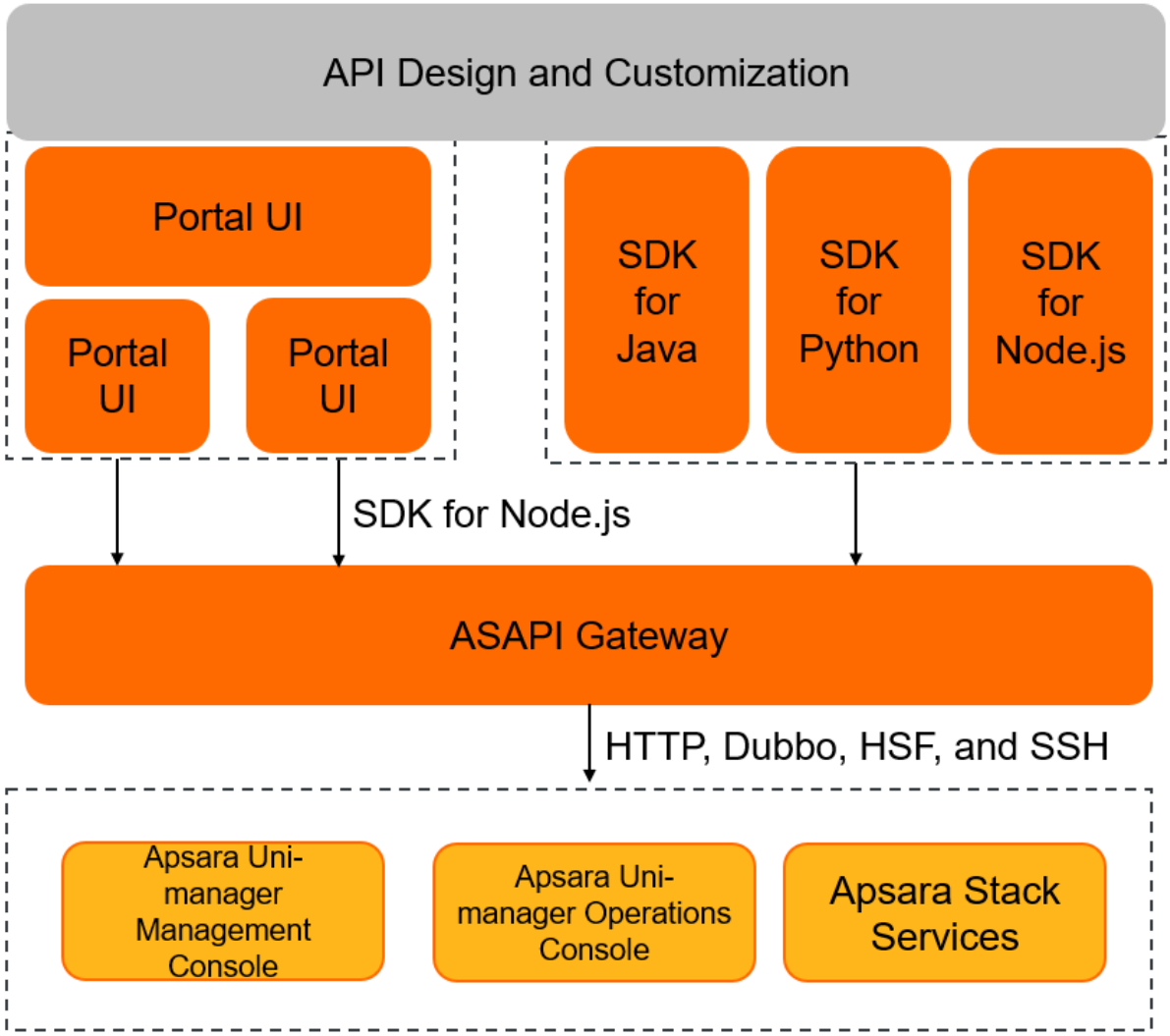
4.1.1. Call SDKs for cloud services by using ASAPI

4.1.1.1. 文档标题缺失，请补全后重新导出

4.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

4.1.1.1.2. Preparations

4.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

4.1.1.1.2.2. View information about API operations

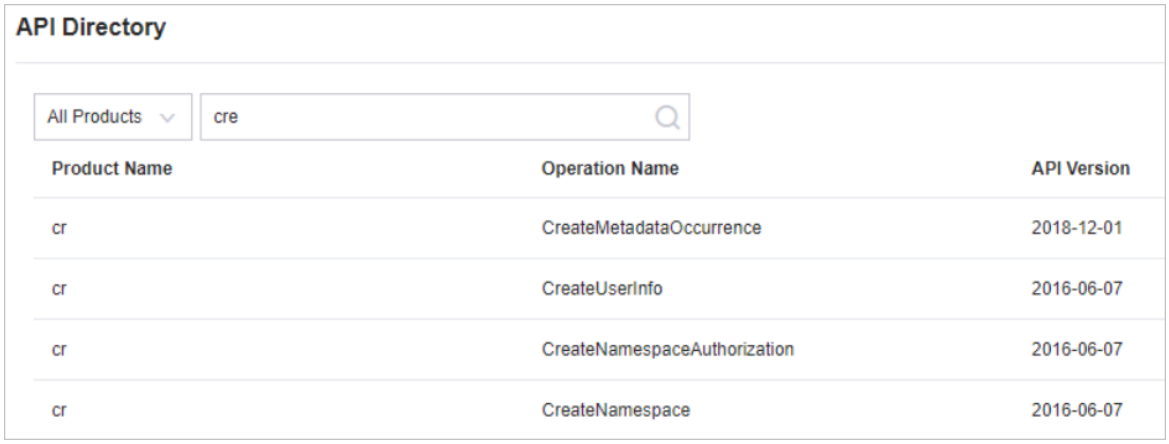
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



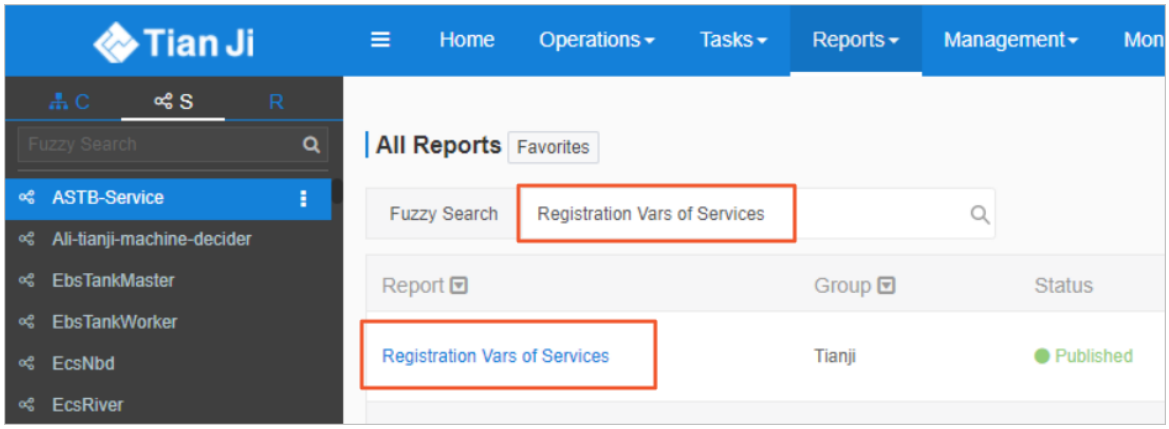
4. Then, you can view the service name, API operation name, and API operation version.

4.1.1.1.2.3. Generate an endpoint for the ASAPI

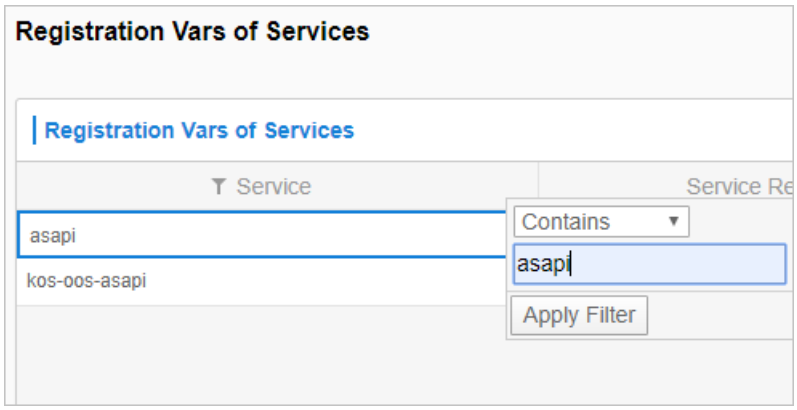
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

4.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

4.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

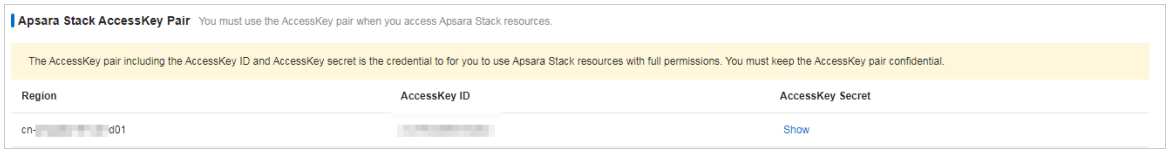
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

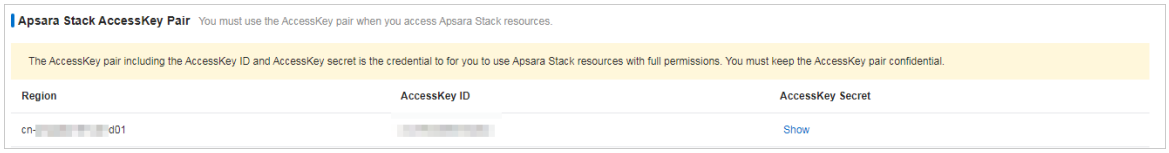
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

4.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



4.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

4.1.1.1.4. SDK description

4.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

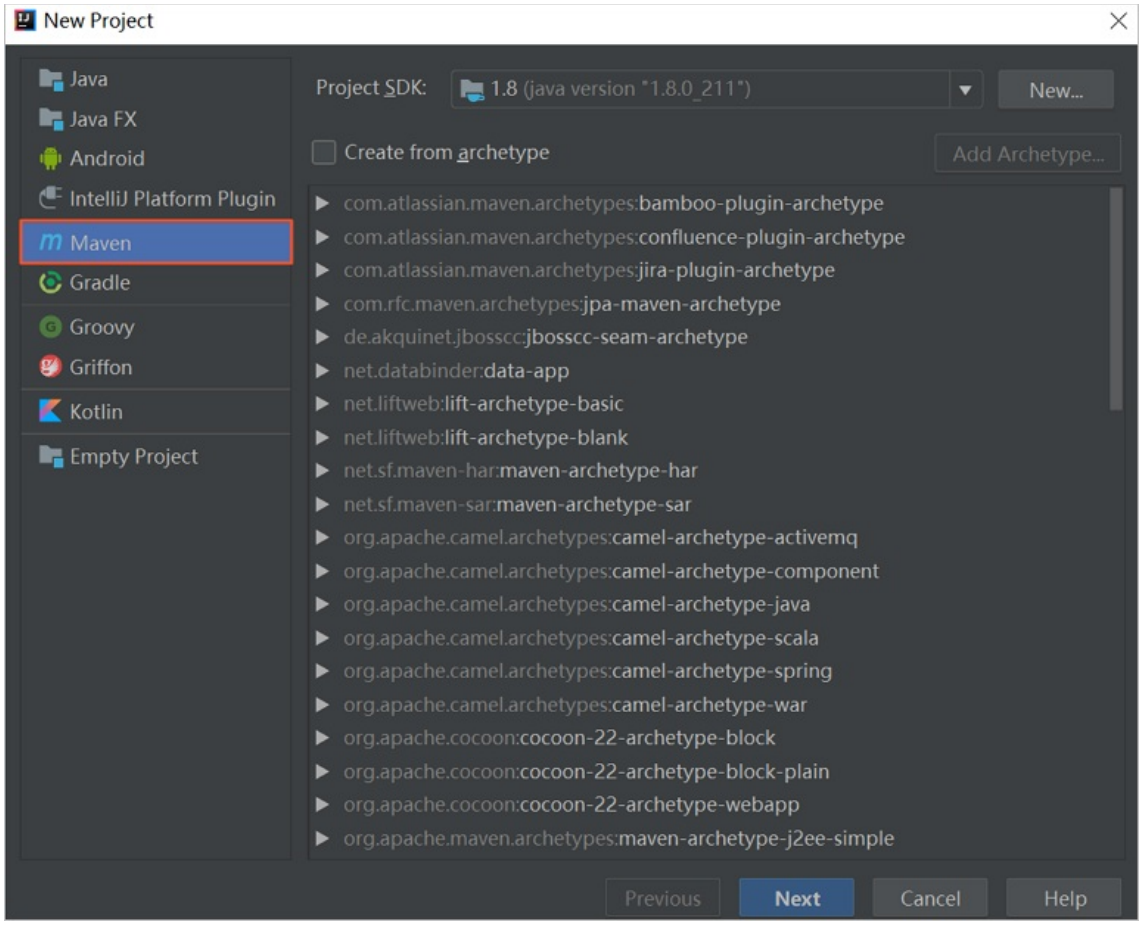
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

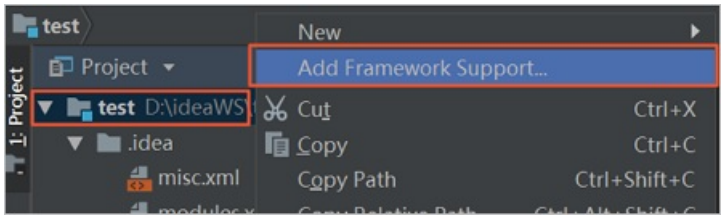
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

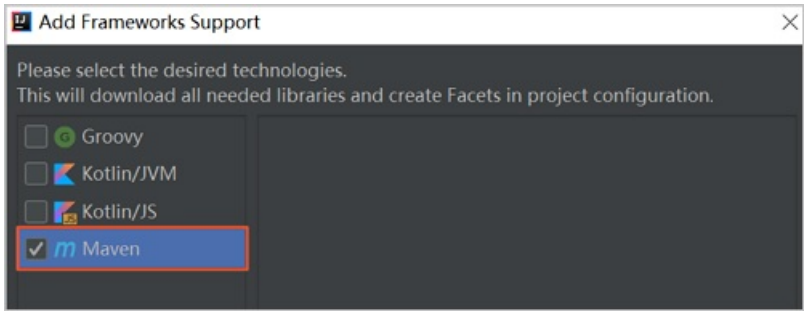
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



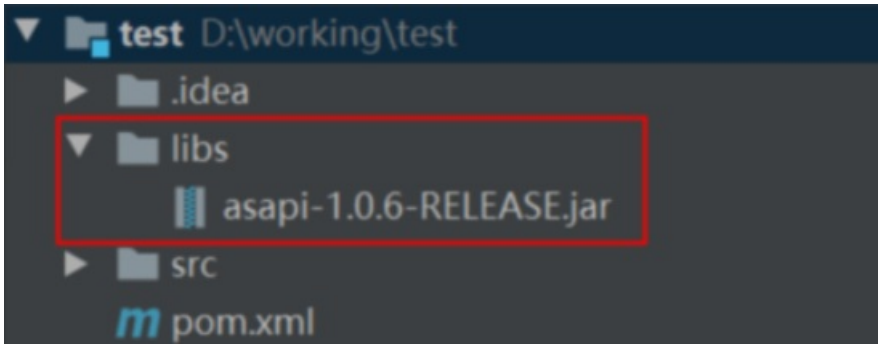
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



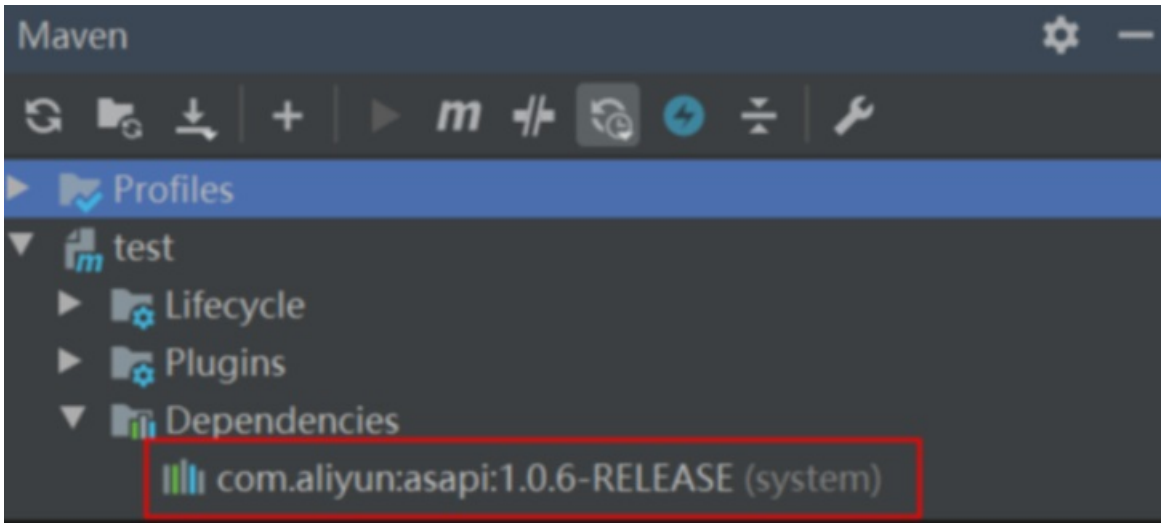
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

4.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

4.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

4.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

4.1.1.1.5. HTTP requests

4.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

4.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

4.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D` .

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

4.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

4.1.2. API reference

4.1.2.1. Auto Scaling API

4.1.2.1.1. API usage instructions

Before you call Auto Scaling API operations, you must be granted the Auto Scaling API permissions in the Auto Scaling console.

The following table describes the errors that occur if you are not granted the permissions.

Description

HTTP status code	Error code	Error message	Description
403	Forbidden.Unsubscribed	Do not have permission to access this API.	The error message returned because Auto Scaling is not activated, and you are not authorized to call Auto Scaling API operations.
403	Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	The error message returned because Auto Scaling is not authorized to call the specified operation.

4.1.2.1.2. Make API requests

Call an Auto Scaling API operation, send an HTTP GET request to the Auto Scaling API server, and then add corresponding parameters to the request based on the description of the corresponding API operation. After the request is processed, the system returns a result.

4.1.2.1.3. Request structure

This topic describes the structure of an API request.

- Endpoints

  For information about how to obtain an endpoint, see Generate the endpoint of ASAPI.

- Protocols

  You can send requests over HTTP or HTTPS. For a higher level of security, we recommend that you send requests over HTTPS.

- Methods

  You can use the HTTP GET method to send the request for calling an API operation. If you use this method, the request parameters must be included in the URL of the request.

- Parameters

  For each request, you must specify the operation that you want to perform, such as CreateScalingGroup. Additionally, each request must contain the common request parameters and operation-specific request parameters.

- Encoding

  All requests and responses are encoded in UTF-8.

4.1.2.1.4. Common parameters

4.1.2.1.4.1. Common request parameters

Common request parameters must be included in all Auto Scaling API requests.

Description

Parameter	Type	Required	Description
Format	String	No	The format in which to return the response. Valid values: JSON and XML. Default value: XML.
Version	String	Yes	The version number of the API. The format is YYYY-MM-DD. The version is 2014-08-28.
AccessKeyId	String	Yes	The AccessKey ID provided by Alibaba Cloud.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. For example, 20:00:00, August 28, 2014, UTC+8 is written as 2014-08-28T12:00:00Z.
SignatureVersion	String	Yes	The version of the signature algorithm. Set the value to 1.0.
SignatureNonce	String	Yes	A unique random number used to prevent replay attacks. You must use different numbers for different requests.

XML format

```
https://ess.example.com/
?Format=xml
&Version=2014-08-28
&Signature=Pc5WB8gokVn0xfeu%2FZV%2BiNM1****
&SignatureMethod=HMAC-SHA1
&SignatureNonce=1521552885****
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2014-08-28T12:00:00Z
```

4.1.2.1.4.2. Common response parameters

Every response returns a unique RequestID regardless of whether the call is successful.

XML format

```
<?xml version="1.0" encoding="UTF-8"? >
<!--Root node of the response-->
<Operation name+Response>
    <! --Response tag-->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! --Responses-->
</Operation name+Response>
```

JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /*Responses*/
}
```

4.1.2.1.5. Responses

4.1.2.1.5.1. Successful response examples

API responses use the HTTP response format where a 2xx status code indicates a successful call and a 4xx or 5xx status code indicates a failed call. Responses can be returned in either the JSON or XML format. You can specify the response format in the request. The default response format is XML.

> **Note** Sample responses in our API documents are formatted in a way that is easier for you to read. The actual responses are not formatted with line breaks or indentation.

Responses in the XML format include information about whether the request succeeds and specific service data.

```
<?xml version="1.0" encoding="UTF-8"? >
<!--Result Root Node-->
<Operation Name+Response>
    <!--Return Request Tag-->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <!--Return Result Data-->
</Operation Name+Response>
```

JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /* Return Result Data */
}
```

4.1.2.1.5.2. Sample error responses

When an error occurs during an API call, no result data is returned. You can locate the cause of an error based on the error codes defined by each API operation, the error code table in the appendix Client errors, and Server errors.

When an error occurs on an HTTP request for an API operation, a 4xx or 5xx HTTP status code is returned. The response body includes the error code and error message. The response body also contains a globally unique request ID (RequestId) and the ID of the site you accessed with this request (HostId).

XML format

```
<?xml version="1.0" encoding="UTF-8"? >
<Error>
   <RequestId>8906582E-6722-409A-A6C4-0E7863B733A5</RequestId>
   <HostId>ess.example.com</HostId>
   <Code>UnsupportedOperation</Code>
   <Message>The specified action is not supported. </Message>
</Error>
```

JSON format

```
{
    "RequestId": "8906582E-6722-409A-A6C4-0E7863B733A5",
    "HostId": "ess.example.com",
    "Code": "UnsupportedOperation",
    "Message": "The specified action is not supported."
}
```

4.1.2.1.6. Request signatures

This topic describes how to use the request signature to verify the identity of the API caller.

Auto Scaling authenticates each access request. Therefore, each request must contain signature information, regardless of whether the request is sent over HTTP or HTTPS. Auto Scaling implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender. You can obtain the AccessKey ID and the AccessKey secret in the Apsara Uni-manager Management Console. For more information, see Obtain an AccessKey pair. The AccessKey ID is used to verify the identity of a user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret confidential.

Perform the following operations to sign an access request:

1. Create a canonicalized query string by using request parameters.
   i. Arrange all request parameters in alphabetical order. These parameters include all common request parameters and operation-specific parameters except the Signature parameter in the common request parameters.

      If you use the GET method to make a request, the request parameters are included as a part of the request URL. The first parameter follows a question mark (`?`) in the URL, and the other parameters follow an ampersand (`&`).

   ii. Encode the name and value of each request parameter.

      The parameter names and values must be URL-encoded in UTF-8 based on the following encoding rules:

      - Uppercase letters, lowercase letters, digits, and some special characters such as ampersands (&), hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
      - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as `%22` .
      - Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
      - Spaces must be encoded as `%20` . Do not encode spaces as plus signs `(+)` .

      > **Note** Most libraries that support URL encoding, such as java.net.URLEncoder, comply with the Multipurpose Internet Mail Extensions (MIME) encoding rules of `application/x-www-form-urlencoded` . If this encoding method is used, replace the plus signs (+) with `%20` , the asterisks (*) with `%2A` , and `%7E` with tildes (~) in the encoded strings to obtain the required strings.

   iii. Connect the encoded parameter names and values with equal signs (=).
   iv. Arrange the parameter name and value pairs connected by equal signs in alphabetical order, and connect them with ampersands (&) to obtain a canonicalized query string.
2. Create a string-to-sign from the encoded canonicalized query string based on the following rules:

```
StringToSign=
HTTPMethod + "&" +
percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

3. Use the signature string to calculate the HMAC value of the string-to-sign as defined in RFC 2104.

   The key used for signature calculation is the combination of your AccessKey secret and an ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the HMAC value in Base64 to obtain the signature string.
5. Add the signature string to the request as the Signature parameter to sign the request.

   When the signature string is submitted to the ECS instance as the final request parameter value, the string must be URL-encoded as other parameters based on the rules defined in RFC 3986.

DescribeScalingGroups is used in the example. The following section shows the request URL to be signed:

```
http://ess.example.com/?TimeStamp=2014-08-15T11%3A10%3A07Z&Format=xml&AccessKeyId=testid&Action=DescribeScalingGroups&SignatureMethod=HMAC-SHA1&RegionId=cn-qingdao&SignatureNonce=1324fd0e-e2bb-4bb1-917c-bd6e437f****&SignatureVersion=1.0&Version=2014-08-28
```

The following section shows the corresponding StringToSign:

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeScalingGroups&Format%3Dxml&RegionId%3Dcn-qingdao&SignatureMethod%3DHMAC-SHA1&SignatureNonce%3D1324fd0e-e2bb-4bb1-917c-bd6e437f***&SignatureVersion%3D1.0&TimeStamp%3D2014-08-15T11%253A10%253A07Z&Version%3D2014-08-28
```

If the Access Key ID is testid and the AccessKey secret is testsecret, the key used for HMAC calculation is testsecret&. Then, the calculated signature value is SmhZuLUnXmqxSEZ%2FGqyiwGqmf%2BM=.

The following section shows the URL of the signed request:

```
http://ess.example.com/?TimeStamp=2014-08-15T11%3A10%3A07Z&Format=xml&AccessKeyId=testid&Action=DescribeScalingGroups&SignatureMethod=HMAC-SHA1&RegionId=cn-qingdao&SignatureNonce=1324fd0e-e2bb-4bb1-917c-bd6e437f****&SignatureVersion=1.0&Version=2014-08-28&Signature=SmhZuLUnXmqxSEZ%2FGqyiwGqmf%****
```

The signature string is used as the value of the Signature parameter, and the parameter is added to the request URL.

4.1.2.1.7. Scaling groups

4.1.2.1.7.1. CreateScalingGroup

You can call this operation to create a scaling group.

Description

You can call this operation to create a scaling group based on input parameters.

- MinSize specifies the minimum number of ECS instances in a scaling group. MaxSize specifies the maximum number of ECS instances in a scaling group.
  - If the number of ECS instances in a scaling group is less than the MinSize value, Auto Scaling automatically adds ECS instances to the scaling group to ensure that the number of instances is equal to the MinSize value.
  - If the number of ECS instances in a scaling group is greater than the MaxSize value, Auto Scaling automatically removes ECS instances from the scaling group to ensure that the number of instances is equal to the MaxSize value.
- DefaultCooldown specifies the default cooldown period of a scaling group.

  - During the cooldown period after a scale-in or scale-out event is executed in a scaling group, Auto Scaling cannot execute other scaling activities for the scaling group.
  - This parameter is valid only for scaling activities that are triggered by Cloud Monitor event-triggered tasks.
- RemovalPolicy is used to filter and remove ECS instances from a scaling group. This parameter allows you to remove instances based on multiple filter conditions.
  - If an SLB instance is associated with a scaling group, Auto Scaling automatically adds ECS instances that are added to the scaling group to the specified SLB instance.
  - The specified SLB instance must be in the Active state.
  - Health check must be enabled on all ports of listeners that are configured for the specified SLB instance. Otherwise, ECS instances fail to be created.
  - If ECS instances of the VPC type have been added to an SLB instance, the SLB instance cannot be associated with a scaling group.
  - The default weight of an ECS instance that is added to an SLB instance is 50.
- If an ApsaraDB RDS instance is specified for a scaling group, the scaling group automatically adds the internal IP addresses of its ECS instances to the whitelist of the specified ApsaraDB RDS instance.
  - The specified ApsaraDB RDS instance must be in the Running state.
  - The number of IP addresses that can be added to the whitelist of the specified ApsaraDB RDS instance cannot be greater than the upper limit.
- A scaling group does not immediately take effect after it is created. You must enable the scaling group to trigger scaling rules and execute scaling activities.
- The scaling group must be in the same region as the associated SLB instance and ApsaraDB RDS instance.
- You can create up to 20 scaling groups.

Request parameters

Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateScalingGroup.
RegionId	String	Yes	The ID of the region where the scaling group is located.
MaxSize	Integer	Yes	The maximum number of ECS instances in the scaling group. Valid values: 0 to 100.
MinSize	Integer	Yes	The minimum number of ECS instances in the scaling group. Valid values: 0 to 100.

Parameter	Type	Required	Description
ScalingGroupName	String	No	The name of the scaling group. The name must be 2 to 40 characters in length and can contain digits, letters, underscores (_), hyphens (-), and periods (.). It must start with a letter or digit. This name must be unique to an Apsara Stack account in a region. If you do not specify this parameter, the default value is ScalingGroupId.
DefaultCooldown	Integer	No	The default cooldown time of the scaling group. Valid values: 0 to 86400. Unit: seconds. Default value: 300.
RemovalPolicy.N	String	No	The policy for removing ECS instances from a scaling group. Valid values: • OldestInstance: removes the ECS instance that was added to the scaling group at the earliest point in time. • NewestInstance: removes the ECS instance that was most recently added to the scaling group. • OldestScalingConfiguration: removes the ECS instance that was created based on the earliest scaling configuration. Default values: OldestScalingConfiguration and OldestInstance. You can specify up to two values.
LoadBalancerIds	String	No	The IDs of SLB instances to be associated with the scaling group. The instance IDs are formatted as a JSON array. Example: [“lb-id0” , “lb-id1” , ... “lb-idz”]. You can specify a maximum of five SLB instances.
DBInstanceIds	String	No	The IDs of ApsaraDB RDS instances to be associated with the scaling group. The instance IDs are formatted as a JSON array. Example: [“rm-id0” , “rm-id1” , ... “rm-idz”]. You can specify a maximum of eight ApsaraDB RDS instances.
VSwitchId	String	No	The ID of the vSwitch. It must be specified when you create a scaling group of the VPC type.

Parameter	Type	Required	Description
VSwitchIds.N	String	No	• The ID of vSwitch N. If VSwitchIds.N is set, VSwitchId is ignored. • This parameter enables you to specify a maximum of five vSwitches of one VPC in multiple zones when you create a scaling group. Valid values of N: 1 to 5. • The vSwitch priority is indicated by an ascending set of numbers. 1 indicates the highest priority. • If an ECS instance cannot be created in the zone where the vSwitch with the highest priority resides, the system automatically uses the vSwitch with the next highest priority to create the ECS instance.

Response parameters

Description

Parameter	Type	Required
ScalingGroupId	String	The ID of the scaling group, which is generated by the system and globally unique.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Description

Description	Error code	Error message	HTTP status code
The error message returned because the specified scaling group name already exists.	InvalidScalingGroupName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400
The error message returned because the maximum number of scaling groups has been reached.	QuotaExceeded.ScalingGroup	Scaling group quota exceeded.	400
The error message returned because the specified region does not exist.	InvalidRegionId.NotFound	The specified region does not exist.	404

Description	Error code	Error message	HTTP status code
The error message returned because the specified MinSize value is greater than the MaxSize value.	InvalidParameter.Conflict	The value of parameter `<parameter name>` and parameter `<parameter name>` are conflict.	400
The error message returned because the specified SLB instance does not exist in this account.	InvalidLoadBalancerId.NotFound	The specified Load Balancer does not exist.	404
The error message returned because the specified SLB instance and scaling group are not in the same region.	InvalidLoadBalancerId.RegionMismatch	The specified Load Balancer and the specified scaling group are not in the same Region.	400
The error message returned because the specified SLB instance is not in the active state.	IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400
The error message returned because health check is not enabled for the specified SLB instance.	IncorrectLoadBalancerHealthCheck	The current health check type of specified load balancer does not support this action.	400
The error message returned because the network type of the specified SLB instance is VPC after you specify the vSwitch ID.	InvalidLoadBalancerId.IncorrectAddressType	The current address type of specified load balancer does not support this action.	400
The error message returned because the network type of the ECS instance that is added to the specified SLB instance is different from that of the scaling group.	InvalidLoadBalancerId.IncorrectInstanceNetworkType	The network type of the instance in specified Load Balancer does not support this action.	400
The error message returned because the ECS instance that is added to the specified SLB instance and the vSwitch are not in the same VPC.	InvalidLoadBalancerId.VPCMismatch	The specified virtual switch and the instance in specified Load Balancer are not in the same VPC.	400

Description	Error code	Error message	HTTP status code
The error message returned because the specified ApsaraDB RDS instance does not exist in this account.	InvalidDBInstanceId.NotFound	DB instance "XXX" does not exist.	404
The error message returned because the specified ApsaraDB RDS instance and scaling group are not in the same region.	InvalidDBInstanceId.RegionMismatch	DB instance "XXX" and the specified scaling group are not in the same Region.	400
The error message returned because the specified ApsaraDB RDS instance is not in the Running state.	IncorrectDBInstanceStatus	The current status of DB instance “XXX” does not support this action.	400
The error message returned because the maximum number of IP addresses that can be added to the whitelist of the specified ApsaraDB RDS instance has been reached.	QuotaExceeded.DBInstanceSecurityIP	Security IP quota exceeded in DB instance “XXX”.	400
The error message returned because the specified vSwitch does not exist.	InvalidVSwitchId.NotFound	The specified virtual switch does not exist.	404
The error message returned because the maximum number of private IP addresses of the vSwitch has been reached.	QuotaExceeded.PrivateIpAddress	Private IP address quota exceeded in the specified virtual switch.	400
The error message returned because the maximum number of instances in the VPC has been reached.	QuotaExceeded.VPCInstance	Instance quota exceeded in the specified VPC.	400
The error message returned because the vSwitch is unavailable, and instances cannot be created.	IncorrectVSwitchStatus	The current status of virtual switch does not support this operation.	400

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScalingGroup
&RegionId=cn-qingdao
&MaxSize=20
&MinSize=2
&LoadBalancerId=147b46d767c-cn-qingdao-c****
&DBInstanceId.1=rdszzzyyuny****
&DBInstanceId.2=rdsia3u3yia****
&<Common request parameters>
```

Sample responses

XML format

```
<CreateScalingGroupResponse>
    <RequestId>536E9CAD-DB30-4647-AC87-AA5CC38C5382</RequestId>
    <ScalingGroupId>dP8VqSd9ENXPc0ciVmbc****</ScalingGroupId>
</CreateScalingGroupResponse>
```

JSON format

```
{
    "RequestId": "536E9CAD-DB30-4647-AC87-AA5CC38C5382",
    "ScalingGroupId": "dP8VqSd9ENXPc0ciVmbc****"
}
```

4.1.2.1.7.2. ModifyScalingGroup

You can modify a scaling group.

Description

- You can call this operation to modify the attributes of a scaling group. However, the following attributes cannot be modified:
  - RegionId
  - LoadBalancerId
  - DBInstanceId
- This operation can only be called when the scaling group is in active or inactive state.
- When the specified scaling configuration needs to be modified, the InstanceType of the modified scaling configuration must be the same as the active InstanceType of the scaling configuration.

  After a new scaling configuration is added to the scaling group, the running ECS instances that were created based on the previous scaling configuration will remain unchanged.
- If the number of ECS instances does not meet the requirements of the modified MaxSize and MinSize parameters, ECS instances will be added to or removed from the group, so that the number of instances is equal to the MaxSize or MinSize parameter.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyScalingGroup.
ScalingGroupId	String	Yes	The ID of a scaling group.
ScalingGroupName	String	No	The displayed name of the scaling group. The name must be 2 to 40 characters in length. It must start with a letter or number. It can contain numbers, uppercase letters, lowercase letters, underscores (_), hyphens (-), and periods (.). The name of the scheduled task must be unique to an Alibaba Cloud account in the region it is located.
ActiveScalingConfigurationId	String	No	The ID of the active scaling configuration in the scaling group.
MinSize	Integer	No	The minimum number of ECS instances in the scaling group. Valid values: [0, 100].
MaxSize	Integer	No	The maximum number of ECS instances in the scaling group. Valid values: [0, 100].
DefaultCooldown	Integer	No	The default cool-down time of the scaling group. Valid values: [0, 86400]. Unit: second.
RemovalPolicy.N	String	No	The ECS instance removal policy for the scaling group. Valid values: • OldestInstance: Remove the ECS instance that was added to the scaling group first. • NewestInstance: Remove the ECS instance that was added to the scaling group last. • OldestScalingConfiguration: Remove ECS instances that were created based on the earliest scaling configuration. A maximum of two values can be entered.

Response parameters

For more information, see Common response parameters.

Error code

For more information about common error codes, see Client errors or Server errors.

Description	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned when the scaling group name already exists.	InvalidScalingGroupName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400
The error message returned when the specified scaling configuration does not exist in the specified scaling group.	InvalidScalingConfigurationId.NotFound	The specified scaling configuration does not exist.	404
The error message returned when the instances types of the specified scaling configuration and the active scaling configuration are different.	InvalidScalingConfigurationId.InstanceTypeMismatch	The specified scaling configuration and existing active scaling configuration have different instance type.	400

Description	Error code	Description	HTTP status code
The error message returned when the specified MinSize is greater than MaxSize.	InvalidParameter.Conflict	The values of parameter `<Parameter name>` and parameter `<Parameter name>` are conflict.	400

Examples

Sample requests

```
http://ess.example.com/?Action=ModifyScalingGroup
&ScalingGroupId=cqS5QbbhmvGLcJbWoDbW****
&ScalingGroupName=ScalingGroup
&<Common request parameter>
```

Response examples

XML format

```
<ModifyScalingGroupResponse>
    <RequestId>6469DCD0-13AC-487E-85A0-CE4922908FDE</RequestId>
</ModifyScalingGroupResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE"
}
```

4.1.2.1.7.3. EnableScalingGroup

You can call this operation to enable a scaling group.

Description

- After a scaling group is enabled, the ECS instances specified by InstanceId.N are added to the scaling group. If the number of ECS instances in the scaling group is less than the MinSize value after the ECS instances are added, additional ECS instances are automatically created to achieve the MinSize value.

  For example, a scaling group is created with the MinSize parameter set to 5. Two existing ECS instances are specified in the InstanceId.N parameter when the scaling group is enabled. Then, three additional ECS instances are automatically created after the two ECS instances are added by Auto Scaling to the scaling group.
- You can call this operation only when the scaling group is inactive.
- If the scaling group has no active scaling configuration, you must specify a scaling configuration when you enable the scaling group.
  - A single scaling group can only have one active scaling configuration at a time.

- A single scaling group can only have one active scaling configuration at a time.
- If an active scaling configuration exists before the scaling group is enabled, this configuration will become inactive after you specify a new active scaling configuration when you call the operation.

- The limits on ECS instances to be added are as follows:
  - The ECS instances and the scaling group must be in the same region.
  - The ECS instances must have the same instance type as that of the active scaling configuration.
  - The ECS instances must be running.
  - The ECS instances have not been added to any scaling group.
  - If the VSwitchId parameter is specified for a scaling group, the ECS instances that reside in a classic network or in other VPCs cannot be added to the scaling group.
  - If the VSwitchId parameter is not specified for a scaling group, ECS instances that belong to a VPC cannot be added to the scaling group.
- If the sum of the number of instances to be added specified by this operation and the number of existing ECS instances in the scaling group is greater than the MaxSize value, the call fails.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to EnableScalingGroup.
ScalingGroupId	String	Yes	The ID of the scaling group.
ActiveScalingConfigurationId	String	No	The ID of the scaling configuration to be activated in the scaling group.
InstanceId.N	String	No	The IDs of ECS instances to be added to the enabled scaling group. Valid values of N: 1 to 20.

Response parameters

For more information, see Common response parameters.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Description	Error code	Error message	HTTP status code
The error message returned because the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404

Description	Error code	Error message	HTTP status code
The error message returned because Auto Scaling is not authorized to call the specified operation.	Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	403
The error message returned because the specified scaling group is currently being deleted.	IncorrectScalingGroupStatus	The current status of the specified scaling group does not support this action.	400
The error message returned because the specified scaling configuration does not exist in the specified scaling group.	InvalidScalingConfigurationId.NotFound	The specified scaling configuration does not exist.	404
The error message returned because the instance type of the specified scaling configuration is different from that of the active scaling configuration.	InvalidScalingConfigurationId.InstanceTypeMismatch	The specified scaling configuration and existing active scaling configuration have different instance type.	400
The error message returned because no active scaling configuration is specified for the scaling group.	MissingActiveScalingConfiguration	An active scaling configuration for the specified scaling group is not supplied.	400
The error message returned because the specified ECS instance does not exist in the current account.	InvalidInstanceId.NotFound	Instance "XXX" does not exist.	404

Description	Error code	Error message	HTTP status code
The error message returned because the specified ECS instance and the scaling group are not in the same region.	InvalidInstanceId. RegionMismatch	Instance "XXX" and the specified scaling group are not in the same Region.	400
The error message returned because the type of the specified ECS instance is different from that in the active scaling configuration.	InvalidInstanceId. InstanceTypeMismatch	Instance "XXX" and existing active scaling configuration have different instance type.	400
The error message returned because the specified ECS instance is not running.	IncorrectInstanceStatus	The current status of instance "XXX" does not support this action.	400
The error message returned because the network type of the specified ECS instance is different from that of the scaling group.	InvalidInstanceId. NetworkTypeMismatch	The network type of instance "XXX" does not support this action.	400
The error message returned because the added ECS instance and the specified scaling group are not in the same VPC.	InvalidInstanceId.VPCMismatch	Instance "XXX" and the specified scaling group are not in the same VPC.	400
The error message returned because the specified ECS instance is already added to another scaling group.	InvalidInstanceId.InUse	Instance "XXX" is already attached to another scaling group.	400

Description	Error code	Error message	HTTP status code
The error message returned because the specified SLB instance is not active.	IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400
The error message returned because health check is not enabled for the specified SLB instance.	IncorrectLoadBalancerHealthCheck	The current health check type of specified load balancer does not support this action.	400
The error message returned because the network type of the ECS instance attached to the specified SLB instance is different from that of the scaling group.	InvalidLoadBalancerId.IncorrectInstanceNetworkType	The network type of the instance in specified Load Balancer does not support this action.	400
The error message returned because the ECS instance attached to the specified SLB instance is not in the same VPC as the VSwitch specified by VSwitchID.	InvalidLoadBalancerId.VPCMismatch	The specified virtual switch and the instance in specified Load Balancer are not in the same VPC.	400
The error message returned because the specified RDS instance is not running.	IncorrectDBInstanceStatus	The current status of DB instance "XXX" does not support this action.	400

Description	Error code	Error message	HTTP status code
The error message returned because the total number of ECS instances (Total Capacity) exceeds the specified value of MaxSize after ECS instances are added to the specified scaling group.	IncorrectCapacity.MaxSize	To attach the instances, the total capacity will be greater than the max size.	400

Examples

Sample requests

```
http://ess.example.com/?Action=EnableScalingGroup
&ScalingGroupId=dmIDKNcyWfzncX9MWX1****
&InstanceId.1=i-283vv****
&<Common request parameters>
```

Sample responses

XML format

```
<EnableScalingGroupResponse>
    <RequestId>6469DCD0-13AC-487E-85A0-CE4922908FDE</RequestId>
</EnableScalingGroupResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE"
}
```

4.1.2.1.7.4. DisableScalingGroup

You can disable a specified scaling group.

Description

- The scaling activity that is being executed before this operation is called will be continued until it is completed. Scaling activity requests after this operation is called will be rejected.
- The operation can only be called when the scaling group is active.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DisableScalingGroup.
ScalingGroupId	String	Yes	The ID of the scaling group.

Response parameters

For more information about response parameters, see Common response parameters.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404

Examples

Sample requests

```
http://ess.example.com/?Action=DisableScalingGroup
&ScalingGroupId=dmIDKNcyWfzncX9MWX1****
&<Common request parameter>
```

Response examples

XML format

```
< DisableScalingGroupResponse>
    <RequestId>6469DCD0-13AC-487E-85A0-CE4922908FDE</RequestId>
</ DisableScalingGroupResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE"
}
```

4.1.2.1.7.5. DeleteScalingGroup

You can delete a specified scaling group.

Description

- ForceDelete indicates whether to forcibly delete a scaling group and remove and release its ECS instances when the scaling group contains ECS instances or is undergoing a scaling activity.
- When ForceDelete is set to false, the scaling group can only be deleted when the following conditions are met:
  - Condition 1: The scaling group is not currently undergoing a scaling activity.
  - Condition 2: The number of ECS instances currently in the scaling group (Total Capacity) is 0.
  - If these two conditions are met, the scaling group can be disabled and deleted.
- If ForceDelete is set to true, we recommend that you perform the following procedure:
  - Disable the scaling group to reject new scaling activity requests. Remove all ECS instances from the scaling group after the ongoing scaling activities are completed and then delete the scaling group. Manually added ECS instances are only removed from the scaling group, whereas automatically created instances are deleted.
- Note that deleting a scaling group also deletes its scaling configurations, rules, activities, and requests.
- The following tasks and instances are not deleted: scheduled tasks, CloudMonitor alarm tasks, Server Load Balancer instances, and ApsaraDB RDS instances.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteScalingGroup.
ScalingGroupId	String	Yes	The ID of the scaling group.
ForceDelete	Bool	No	Indicates whether to forcibly delete a scaling group and remove and release its ECS instances when the scaling group contains ECS instances or is undergoing scaling activity. The default value is false, indicating that the scaling group will not be forcibly deleted.

Response parameters

For more information about response parameters, see Common response parameters.

Error code

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404

Error message	Error code	Description	HTTP status code
The error message returned when Auto Scaling does not have full authorization with Open API.	Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	403
The error message returned when the specified scaling group still contains ECS instances.	InstanceInUse	You cannot delete a scaling configuration or scaling group while there is an instance associated with it.	400

Examples

Sample requests

```
http://ess.example.com/?Action=DeleteScalingGroup
&ScalingGroupId=dmIDKNcyWfzncX9MWX1****
&<Common request parameters>
```

Response examples

XML format

```
<DeleteScalingGroupResponse>
    <RequestId>6469DCD0-13AC-487E-85A0-CE4922908FDE</RequestId>
</DeleteScalingGroupResponse>
```

JSON format

```
{
   "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE"
}
```

4.1.2.1.7.6. DescribeScalingGroups

You can call this operation to query scaling groups.

Description

A scaling group can have the following lifecycle states:

- Active: The active scaling group can receive requests to execute scaling rules and trigger scaling activities.
- Inactive: The inactive scaling group cannot receive any requests to execute scaling rules.
- Deleting: The scaling group is being deleted and cannot receive any requests to execute scaling rules.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeScalingGroups.
RegionId	String	Yes	The ID of the region where the scaling group resides.
ScalingGroupId.N	String	No	The ID of the scaling group. Valid values of N: 1 to 20. The IDs of inactive scaling groups will not be displayed in the query result and no errors will be returned.
ScalingGroupName.N	String	No	The name of the scaling group. Valid values of N: 1 to 20. The names of inactive scaling groups will not be displayed in the query result and no errors will be returned.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.

Response parameters

Parameter	Type	Description
TotalCount	Integer	The total number of scaling groups.
PageNumber	Integer	The page number of the returned page.
PageSize	Integer	The number of entries returned per page.
ScalingGroups	ScalingGroupSetType	A collection of details about the scaling groups you are querying.

ScalingGroupSetType is a collection of ScalingGroupItemType.

Parameter	Type	Description
ScalingGroup	ScalingGroupItemType	The details of the scaling group.

The following table describes the attributes of ScalingGroupItemType.

Parameter	Type	Description
ScalingGroupId	String	The ID of the scaling group.
ScalingGroupName	String	The display name of the scaling group.
ActiveScalingConfigurationId	String	The ID of the active scaling configuration in the scaling group.
RegionId	String	The ID of the region where the scaling group resides.
MinSize	Integer	The minimum number of ECS instances in the scaling group.
MaxSize	Integer	The maximum number of ECS instances in the scaling group.
DefaultCooldown	Integer	The default cooldown time of the scaling group.
RemovalPolicies	RemovalPolicySetType	The collection of policies for removing ECS instances from the scaling group.
LoadBalancerIds	List of LoadBalancerId	The IDs of the SLB instances.
DBInstanceIds	DBInstanceIdSetType	The IDs of the RDS instances.
VSwitchId	String	The ID of the VSwitch corresponding to the scaling group.

Parameter	Type	Description
LifecycleState	String	The lifecycle status of the scaling group. • Active: The active scaling group can receive requests to execute scaling rules and trigger scaling activities. • Inactive: The inactive scaling group cannot receive any requests to execute scaling rules. • Deleting: The scaling group is currently being deleted and cannot receive any requests to execute scaling rules.
TotalCapacity	Integer	The total number of ECS instances in the scaling group.
ActiveCapacity	Integer	The number of Elastic Compute Service (ECS) instances that have been added to the scaling group and are running properly.
PendingCapacity	Integer	The number of ECS instances that are being added to the scaling group, but are still being configured.
RemovingCapacity	Integer	The number of ECS instances that are being removed from the scaling group.
CreationTime	String	The time when the scaling group was created.

RemovalPolicySetType is a collection of strings.

Parameter	Type	Description
RemovalPolicy	String	The policy for removing ECS instances from the scaling group.

DBInstanceIdSetType is a collection of strings.

Parameter	Type	Description
DBInstanceId	String	The ID of the RDS instance.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=DescribeScalingGroups
&RegionId=cn-qingdao
&PageSize=50
&<Common request parameters>
```

Sample responses

XML format

```
<DescribeScalingGroupsResponse>
    <RequestId>6393C3A8-B611-42F2-AFA6-F080FC45D5D0</RequestId>
    <TotalCount>1</TotalCount>
    <PageNumber>1</PageNumber>
    <PageSize>10</PageSize>
    <ScalingGroups>
    <ScalingGroup>
            <ActiveCapacity>1</ActiveCapacity>
            <ActiveScalingConfigurationId>dyo713cNYIB4ddEVlKbc****</ActiveScalingConfigurat
ionId>
            <DBInstanceIds>
                <DBInstanceId>rdszzzyyuny****</DBInstanceId>
            </DBInstanceIds>
            <VSwitchId>vpc-25j4g****</VSwitchId>
            <DefaultCooldown>20</DefaultCooldown>
            <LifecycleState>Active</LifecycleState>
            <LoadBalancerId>147b46d767c-cn-qingdao-c****</LoadBalancerId>
            <MaxSize>1</MaxSize>
            <MinSize>0</MinSize>
            <PendingCapacity>0</PendingCapacity>
            <RegionId>cn-qingdao</RegionId>
            <RemovingCapacity>0</RemovingCapacity>
            <ScalingGroupId>dyrSuvBOtO1dEdIlIbp****</ScalingGroupId>
            <ScalingGroupName>dyrSuvBOtO1dEdIlIbp****</ScalingGroupName>
            <RemovalPolicies>
                <RemovalPolicy>OldestScalingConfiguration</RemovalPolicy>
                <RemovalPolicy>OldestInstance</RemovalPolicy>
            </RemovalPolicies>
            <TotalCapacity>1</TotalCapacity>
            <CreationTime>2014-08-14T10:58Z</CreationTime>
        </ScalingGroup>
    </ScalingGroups>
</DescribeScalingGroupsResponse>
```

JSON format

```
{
  "RequestId": "68386699-8B9E-4D5B-BC4C-75A28F6C2A00",
  "TotalCount": 1,
  "PageSize": 10,
  "PageNumber": 1,
  "ScalingGroups": {
    "ScalingGroup": [
      {
        "ScalingGroupId": "b8pYCVbIV5k9cz4PWpbe****",
        "ScalingGroupName": "b8pYCVbIV5k9cz4PWpbe****",
        "RegionId": "cn-qingdao",
        "RemovingCapacity": 0,
        "DefaultCooldown": 300,
        "MinSize": 1,
        "MaxSize": 2,
        "LifecycleState": "Inactive",
        "ActiveScalingConfigurationId": " dyo713cNYIB4ddEVlKbc****",
        "LoadBalancerId": "147b46d767c-cn-qingdao-c****",
        "PendingCapacity": 0,
        "TotalCapacity": 0,
        "ActiveCapacity": 0,
        "CreationTime": "2014-08-14T10:58Z",
        "DBInstanceIds": {
          "DBInstanceId": [
            "rdsia3u3yia****",
            "rdszzzyyuny****"
          ]
        },
        "VSwitchId":"vpc-25j4g****",
        "RemovalPolicies": {
          "RemovalPolicy": [
            "OldestScalingConfiguration",
            "OldestInstance"
          ]
        }
      }
    ]
  }
 }
```


4.1.2.1.7.7. DescribeScalingInstances

You can query ECS instances in a scaling group. You can query ECS instances by specifying the scaling group ID, scaling configuration ID, health status, lifecycle status, and creation type.

Description

- ECS instances in a scaling group can be either automatically created or manually added.
  - Automatically created ECS instances refer to those created by Auto Scaling during scaling based on user-defined scaling configurations and rules.
  - Manually added ECS instances refer to those added to a scaling group manually by you.

- An ECS instance in a scaling group will go through the following status during its lifecycle:
  - Pending: The ECS instance is currently being added to the scaling group. For example, the instance might currently be being created, added to a Server Load Balancer instance, or added to ApsaraDB RDS.
  - InService: The ECS instance has been successfully added to the scaling group and is providing service normally.
  - Removing: The ECS instance is being removed from the scaling group.
- An ECS instance in a scaling group can be in either of the following health status:
  - Healthy: If an ECS instance is running, it is considered as healthy.
  - Unhealthy: If an ECS instance is not in the **Running** status, it will be considered as unhealthy.
- Auto Scaling automatically removes unhealthy ECS instances from the scaling group.
  - Auto Scaling will stop and release automatically created ECS instances that are unhealthy.
  - Auto Scaling will not stop or release manually added ECS instances that are unhealthy.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value DescribeScalingInstances.
RegionId	String	Yes	The ID of the region where the scaling group is located.
ScalingGroupId	String	No	The ID of the scaling group.
ScalingConfigurationId	String	No	The ID of an associated scaling configuration.
InstanceId.N	String	No	The ID of ECS instance N. N ranges from 1 to 20. The IDs of inactive instances are ignored in the query results, and no error is reported.
HealthStatus	String	No	The health status of an ECS instance in the scaling group. Valid values: • Healthy: The ECS instances are in running status. • Unhealthy: The ECS instances are not in running status.

Parameter	Type	Required	Description
LifecycleState	String	No	The lifecycle status of an ECS instance in the scaling group. Valid values: • InService: the ECS instance has been added to the scaling group and runs properly. • Pending: the ECS instance is being added to the scaling group with relevant configurations not completed. • Removing: The ECS instance is being removed from the scaling group.
CreationType	String	No	The ECS instance type. Valid values: • AutoCreated: the ECS instance is automatically created by the Auto Scaling service in the scaling group. • Added: the ECS instance is created outside the Auto Scaling service and manually added to the scaling group.
PageNumber	Integer	No	The page number of the ECS instance list. The initial value and default value are both 1.
PageSize	Integer	No	When querying by page, this parameter indicates the number of lines per page. Maximum value: 50. Default value: 10.

Response parameters

Parameter	Type	Description
TotalCount	Integer	The total number of the ECS instances.
PageNumber	Integer	The number of current page.
PageSize	Integer	The number of lines per page.
ScalingInstances	ScalingInstanceSetType	A collection of details about the ECS instances that you are querying.

ScalingInstanceSetType is a collection of ScalingInstanceItemTypes.

Parameter	Type	Description
ScalingInstance	ScalingInstanceItemType	The details of an ECS instance.

The following table describes the attributes of ScalingInstanceItemType.

Parameter	Type	Description
InstanceId	String	The ID of an ECS instance.
ScalingGroupId	String	The ID of the scaling group to which an ECS instance belongs.
ScalingConfigurationId	String	The ID of an associated scaling configuration.
HealthStatus	String	The health status of an ECS instance in the scaling group.
LifecycleState	String	The lifecycle status of an ECS instance in the scaling group.
CreationTime	String	The time at which an ECS instance was added to the scaling group.
CreationType	String	The ECS instance type.

Error code

For more information about common error codes, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=DescribeScalingInstances
&RegionId=cn-qingdao
& ScalingGroupId = dBCYxE26IHKcGq1xPcT ****
&<Common request parameter>
```

Response examples

XML format

```
<DescribeScalingInstancesResponse>
    <RequestId>DFF8797F-5B73-4BD7-A7D0-03479C458F7A</RequestId>
    <TotalCount>1</TotalCount>
    <PageNumber>1</PageNumber>
    <PageSize>10</PageSize>
    <ScalingInstances>
        <ScalingInstance>
            <CreationTime>2014-08-15T17:37Z</CreationTime>
            <CreationType>AutoCreated</CreationType>
            <HealthStatus>Healthy</HealthStatus>
            <InstanceId>i-283vvyytn</InstanceId>
            <LifecycleState>Active</LifecycleState>
            <ScalingConfigurationId>eOs27Kb0oXvQcUYjEGel****</ScalingConfigurationId>
            <ScalingGroupId>dBCYxE26IHKcGq1xPcTNBwV</ScalingGroupId>
        </ScalingInstance>
    </ScalingInstances>
</DescribeScalingInstancesResponse>
```

JSON format

```
{
  "RequestId": "13305F2D-A4C2-4E6B-B7C7-0F2150842EA3",
  "TotalCount": 1,
  "PageNumber": 1,
  "PageSize": 50,
  "ScalingInstances": {
    "ScalingInstance": [
      {
        "ScalingConfigurationId": "bU5uZHcAgtzwcL4IeDea****",
        "CreationType": "AutoCreated",
        "InstanceId": "i-28sov****",
        "CreationTime": "2014-08-14T10:59Z",
        "HealthStatus": "Healthy",
        "LifecycleState": "InService",
        "ScalingGroupId": "dE9YbOdCHqaFdFZHXVdD****"
      }
    ]
  }
}
```

4.1.2.1.7.8. DescribeScalingActivities

You can call this operation to query the scaling activities of a scaling group.

Description

- You can specify a scaling group ID to query all scaling activities of the scaling group.
- You can filter query results based on the status of scaling activities.
- Only scaling activities during the last 30 days can be returned.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation you want to perform. Set the value to DescribeScalingActivities.
RegionId	String	Yes	The ID of the region where a scaling activity is located.
ScalingGroupId	String	No	The ID of the scaling group.
ScalingActivityId.N	String	No	The ID of the scaling activity. Valid values of N: 1 to 10. The IDs of inactive scaling activities will not be displayed in the query result and no errors will be returned.
StatusCode	String	No	The status of the scaling activity. Valid values: • Successful: The scaling activity was successful. • Warning: The scaling activity was partially successful. • Failed: The scaling activity failed. • InProgress: The scaling activity is in progress. • Rejected: The scaling activity request is rejected.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.

Response parameters

Parameter	Type	Description
TotalCount	Integer	The total number of scaling activities.
PageNumber	Integer	The page number of the returned page.
PageSize	Integer	The number of entries returned per page.

Parameter	Type	Description
ScalingActivities	ScalingActivitySetType	A collection of the scaling activity information.

ScalingActivitySetType is a collection of ScalingActivityItemType.

Parameter	Type	Description
ScalingActivity	ScalingActivityItemType	The details about the scaling activity.

The following table describes the attributes of ScalingActivityItemType.

Parameter	Type	Description
ScalingActivityId	String	The ID of the scaling activity.
ScalingGroupId	String	The ID of the scaling group.
Description	String	The description of the scaling activity.
Cause	String	The trigger for the scaling activity.
StartTime	String	The time when the scaling activity started.
EndTime	String	The time when the scaling activity ended.
Progress	Integer	The execution progress of the scaling activity.
StatusCode	String	The status of the scaling activity.
StatusMessage	String	Indicates whether the scaling activity is attaching or removing Elastic Compute Service (ECS) instances to or from the scaling group.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=DescribeScalingActivities
&RegionId=cn-qingdao
&PageSize=50
&<Common request parameters>
```

Sample responses

XML format

```
<DescribeScalingActivitiesResponse>
    <RequestId>8FAAE99E-EB43-4838-85AD-93F62454904C</RequestId>
    <TotalCount>1</TotalCount>
    <PageNumber>1</PageNumber>
    <PageSize>10</PageSize>
    <ScalingActivities>
        <ScalingActivity>
            <Cause>A scheduled task excuete scaling rule "srtest", changing the Total Capac
ity from "0" to "1". </Cause>
            <Description>Add "1" ECS instance</Description>
            <EndTime>2014-08-17T12:39Z</EndTime>
            <Progress>100</Progress>
            <ScalingActivityId>ebta5WbUzC8gcwUWvfch****</ScalingActivityId>
            <ScalingGroupId>AG6CQdPU8OKdwLjgZcJ****</ScalingGroupId>
            <StartTime>2014-08-17T12:39Z</StartTime>
            <StatusCode>Successful</StatusCode>
            <StatusMessage>"1" ECS instances is added. </StatusMessage>
        </ScalingActivity>
    </ScalingActivities>
</DescribeScalingActivitiesResponse>
```

JSON format

```
{
  "RequestId":"0A016AD6-A91F-4210-9DEE-D5BBD4270F45",
  "TotalCount":2582,
  "PageNumber":1,
  "PageSize":1,
  "ScalingActivities":{
  "ScalingActivity":[
      {
        "ScalingActivityId":"bBxOR5dhKFoccGkbTrcy****",
        "StartTime":"2014-08-18T20:49Z",
        "EndTime":"2014-08-18T20:49Z",
        "Cause":" A scheduled task excuete scaling rule \"srtest\", changing the Total Capa
city from \"0\" to \"1\".",
        "Description":" Add \"1\" ECS instance ",
        "Progress":100,
        "ScalingGroupId":"c7acXJbAJmpPcGE7G3bw****",
        "StatusCode":"Successful",
        "StatusMessage":"\"1\" ECS instances is added. "
      }
    ]
  },
}
```

4.1.2.1.8. Scaling configurations

4.1.2.1.8.1. CreateScalingConfiguration

You can call this operation to create a scaling configuration.

Description

- You can create up to 10 scaling configurations in a scaling group.
- The created scaling configuration cannot be modified. To use a different scaling configuration, you must create a new one and activate it in the scaling group by modifying the ActiveScalingConfigurationId parameter for the group.
- When creating a scaling configuration, you must select an image to determine the system disk configuration of the instances to be created. The image contains OS and application software configurations. The system disk of an instance created from an image is the clone of the image.
- A security group must be specified for an instance when it is created, so a scaling configuration must also have a security group specified for instances to be created. Instances in the same security group can access each other. By default, instances in different security groups are isolated by firewalls and cannot access each other. You can configure security group rules to allow instances in different groups to access each other.

  A security group can contain a maximum of 1,000 instances. If a security group already contains 1,000 instances, the group cannot be specified when you create an instance.
- When you create an instance, the system allocates a system disk of the appropriate size for the specified instance image. The system disk type can be specified as a cloud disk, or as an ephemeral disk if you have the permission to activate an ephemeral disk. New users do not have this permission.
- Windows operating systems are not supported on instances with memory of 512 MiB or less. 32-bit operating systems are not supported on instances with a memory greater than or equal to 4 GiB.
- The capacity of a cloud disk cannot exceed 2,000 GiB, and the capacity of an ephemeral disk cannot exceed 1 TiB (1,024 GiB).
- The Portable attribute of cloud disk that is created together with an instance is False. This indicates that the cloud disk cannot be added or removed. The DeleteWithInstance attribute of each created disk is True.
- A maximum of four data disks can be added to an instance. The total capacity of ephemeral disks added to an instance cannot exceed 2 TiB (2,048 GiB). This value does not include the capacity of the system disk.
- If the system disk is a cloud disk, you cannot add ephemeral disks as data disks. If the system disk is an ephemeral disk, you can add ephemeral or cloud disks as data disks.
- A security group with a specified VPCId cannot be specified for a scaling configuration unless the VSwitchId parameter has been specified for the scaling group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateScalingConfiguration.
ScalingGroupId	String	Yes	The ID of the scaling group to which the scaling configuration belongs.
ImageId	String	Yes	The ID of the image file that you specified when you create the instance.

Parameter	Type	Required	Description
InstanceType	String	Yes	The ECS instance type.
SecurityGroupId	String	Yes	The ID of the security group to which the instance belongs. Instances that belong to the same security group have mutual access.
ScalingConfigurationName	String	No	The name of the scaling configuration. It must be 2 to 40 characters in length. It must start with a digit, uppercase letter, or lowercase letter. It can contain letters, digits, underscores (_), hyphens (-), and periods (.). This parameter must be unique in the scaling group. If this parameter is not specified, the default value is the value of ScalingConfigurationId.
InternetMaxBandwidthIn	Integer	No	Network ingress bandwidth (Mbit/s). Unit: Mbit/s. Valid values: 1 to 200. If this parameter is not specified, the default network ingress bandwidth is 200 Mbit/s.

IoOptimized	String	No	Specifies whether the instance is I/O optimized. Valid values:
			• Optimized: The instance is of I/O optimized type.
			• If this parameter is not specified:
			  ◦ Instance types of Generation I are non I/O-optimized by default.
			  ◦ Instance types other than Generation I are I/O-optimized by default.
			For non I/O-optimized instance types, this parameter cannot be specified.

SystemDisk.Category	String	No	The system disk type. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • ephemeral_ssd: local SSD The default value is cloud for I/O-optimized instances of Generation I types. The default value is cloud_efficiency for other types of instances.
SystemDisk.Size	Integer	No	The size of the system disk. Unit: GiB. Valid values: • cloud: 40 to 500 • cloud_efficiency: 40 to 500 • cloud_ssd: 40 to 500 • ephemeral_ssd: 40 to 500 Default value: 40 or the size of the image, depending on whichever is greater. If this parameter is specified, the size of the system disk must be greater than or equal to max{40, ImageSize}.

Parameter	Type	Required	Description
DataDisk.N.Category	String	No	The category of data disk N. Valid values: • cloud: basic disk • cloud_efficiency: ultra disk • cloud_ssd: standard SSD • ephemeral_ssd: local SSD Default value: cloud
DataDisk.N.Size	Integer	No	The size of data disk N. Unit: GiB. Valid values of N: 1 to 4. Valid values: • cloud: 5 to 2000 • cloud_efficiency: 20 to 32768 • cloud_ssd: 20 to 32768 • ephemeral_ssd: 5 to 800 The value of this parameter must be greater than or equal to the size specified by the SnapshotId parameter.
DataDisk.N.SnapshotId	String	No	The ID of the snapshot used to create data disk N. Valid values of N: 1 to 4. If this parameter is specified, the DataDisk.N.Size parameter is ignored. The size of the specified snapshot is equal to the size of the created data disk. If the snapshot was created on or before July 15, 2013, this operation cannot be performed and the InvalidSnapshot.TooOld error is returned in the response.
DataDisk.N.Device	String	No	The mount point of data disk N. Valid values of N: 1 to 4. When this parameter is not specified, a mount point is assigned automatically when an ECS instance is created. Valid values: /dev/xvdb, /dev/xvdc... /dev/xvdz. The parameter value is empty by default.
DataDisk.n.DeleteWithInstance	String	No	Specifies whether the data disk is released with the instance. Valid values: • true: The disk is released with the instance. • false: The disk is not released with the instance. Default value: true This parameter is valid only for disks that are created separately and whose DataDisk.N.Category parameter is set to cloud, cloud_efficiency, or cloud_ssd. If you set this parameter for other disks, an error is returned.
LoadBalancerWeight	Integer	No	The weight of the back-end server. Valid values: 0 to 100. Default value: 50.
UserData	String	No	The custom data of the instance. It must be encoded in Base64. The maximum size of the raw data is 16 KiB.

Parameter	Type	Required	Description
KeyPairName	String	No	The name of the key pair. • When you specify Windows-based ECS instances, ignore this parameter. Default value: null. The password is valid even if you have specified this parameter. • Linux instances forbid the use of passwords for log on during initialization.
RamRoleName	String	No	The RAM role name of the instance. It is provided and maintained by RAM. You can use ListRoles to query the role name. For more information about the RamRoleName parameter, see API CreateRole and ListRoles.
Tags	String	No	The tags of the instance. Tags must be specified as key-value pairs, such as {"key1":"value1","key2":"value2", ..."key5":"value5"}. A maximum of five tags can be specified for an instance. The following limits apply to a tag key: • It can be a maximum of 64 characters. • It cannot start with aliyun. • It cannot start with http:// or https://. • It cannot be a null string. The following limits apply to a tag value: • It can be a maximum of 128 characters. • It cannot start with aliyun. • It cannot start with http:// or https://. • It can be a null string.
InstanceTypes.N	String	No	• If you use the InstanceTypes.N parameter, ignore the InstanceType parameter. • Valid values of N: 1 to 10, which indicates that up to 10 instance types can be added to a scaling configuration. • In the InstanceTypes.N parameter, N indicates the priority of instance types in the current scaling configuration. The instance type with N set to 1 has the highest priority. A higher value of N indicates a lower priority. • If an instance type with the highest priority cannot be used to create an instance, the instance type with the next highest priority is automatically used.
InstanceName	String	No	The name of the ECS instance that is created based on the current scaling configuration.

Response parameters

Parameter	Type	Description
ScalingConfigurationId	String	The ID of the scaling configuration. It is generated by the system and must be globally unique.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Description	Error code	Error message	HTTP status code
The error message returned because the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned because the specified scaling configuration name already exists.	InvalidScalingConfigurationName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400
The error message returned because the number of scaling configurations in the specified scaling group reaches the upper limit.	QuotaExceeded.ScalingConfiguration	Scaling configuration quota exceeded in the specified scaling group.	400
The error message returned because the specified image does not exist under this account.	InvalidImageId.NotFound	The specified image does not exist.	404
The error message returned because the specified security group does not exist under this account.	InvalidSecurityGroupId.NotFound	The specified security group does not exist.	404
The error message returned because the specified instance type does not support the specified image.	InvalidImageId.InstanceTypeMismatch	The specified image does not support the specified instance type.	400

Description	Error code	Error message	HTTP status code
The error message returned because the network type of the specified security group is different from that of the specified scaling group.	InvalidSecurityGroupId.IncorrectNetworkType	The network type of specified Security Group does not support this action.	400
The error message returned because the specified security group and the specified VSwitch are not in the same VPC.	InvalidSecurityGroupId.VPCMismatch	The specified security group and the specified virtual switch are not in the same VPC.	400
The error message returned because the number of ECS instances in the specified security group reaches the upper limit.	QuotaExceeded.SecurityGroupInstance	Instance quota exceeded in the specified security group.	400
The error message returned because the instance type of the specified scaling configuration is different from that of the current scaling configuration.	InstanceType.Mismatch	The specified scaling configuration and existing active scaling configuration have different instance type.	400
The error message returned because the total capacity of mounted ephemeral disks exceeds 2 TiB (2,048 GiB).	QuotaExceeded.EphemeralDiskSize	Ephemeral disk size quota exceeded.	403
The error message returned because the type of the specified system disk conflicts with the data disk type.	InvalidParameter.Conflict	The value of parameter `<Parameter name>` and parameter `<Parameter name>` are conflict.	400
The error message returned because you do not have the permission to create an ephemeral disk.	InvalidSystemDiskCategory.ValueUnauthorized	The system disk category is not authorized.	403

Description	Error code	Error message	HTTP status code
The error message returned because the specified snapshot does not exist.	InvalidDataDiskSnapshotId.NotFound	Snapshot "XXX" does not exist.	404
The error message returned because the size of the specified snapshot exceeds the upper limit of the disk size.	InvalidDataDiskSnapshotId.SizeNotSupported	The capacity of snapshot "XXX" exceeds the size limit of the specified disk category.	400
The error message returned because the specified snapshot was created on or before July 15, 2013.	InvalidSnapshot.TooOld	This operation is denied because the specified snapshot is created before 2013-07-15.	403
The error message returned because the mount point of the data disk is already occupied.	InvalidDevice.InUse	Device "XXX" has been occupied.	403
The error message returned because the name of the specified key pair does not exist.	InvalidKeyPairName.NotFound	The specified KeyPairName does not exist in our records.	400
The error message returned because you specify the KeyPairName in Windows OS.	InvalidParameter	The specified value of parameter `KeyPairName` is not valid.	400
The error message returned because you specify the RAM role name for a classic network-type instance.	InvalidNetworkType.ForRAMRole	RAMRole can't be used For classic instance.	400
The error message returned when the specified RAM role name does not exist.	InvalidRamRole.NotFound	The specified RamRoleName does not exist.	400
The error message returned because the specified user data is not encoded in Base64 format.	InvalidUserData.Base64FormatInvalid	The specified parameter UserData must be base64 encoded.	400

Description	Error code	Error message	HTTP status code
The error message returned when the size of the raw user data exceeds 16 KiB.	InvalidUserData.SizeExceeded	The specified parameter UserData exceeds the size.	400

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScalingConfiguration
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&SecurityGroupId=sg-280ih****
&ImageId=centos6u5_64_20G_alia****.vhd
&InstanceType=ecs.t1.xsmall
&<Common request parameters>
```

Sample responses

XML format

```
<CreateScalingConfigurationResponse>
    <RequestId>5CC0AD41-08ED-4559-A683-6F56355FE068</RequestId>
    <ScalingConfigurationId>eOs27Kb0oXvQcUYjEGel****</ScalingConfigurationId>
</CreateScalingConfigurationResponse>
```

JSON format

```
{
    "RequestId": "5CC0AD41-08ED-4559-A683-6F56355FE068",
    "ScalingConfigurationId": "eOs27Kb0oXvQcUYjEGel****",
}
```

4.1.2.1.8.2. DescribeScalingConfigurations

You can call this operation to query scaling configurations.

Description

You can specify a scaling configuration ID or name to query a specific scaling configuration, or specify the scaling group ID to query all scaling configurations of the scaling group.

Scaling configuration status (LifecycleState) can be set to either of the following:

- Active: The scaling configuration is active in a scaling group. Scaling groups use scaling configurations in the active state to automatically create ECS instances.
- Inactive: The scaling configuration is inactive in a scaling group. The scaling group does not use scaling configurations in the inactive state to automatically create ECS instances.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeScalingConfigurations.
RegionId	String	Yes	The ID of the region where a scaling group to which a scaling configuration belongs is located.
ScalingGroupId	String	No	The ID of the scaling group.
ScalingConfigurationId.N	String	No	The ID of the scaling configuration. Valid values of N: 1 to 10. The IDs of inactive scaling configurations do not appear in the query result without any error reported.
ScalingConfigurationName.N	String	No	The name of the scaling configuration. Valid values of N: 1 to 10. The names of inactive scaling configurations do not appear in the query result and no errors are reported.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.

Response parameters

Parameter	Type	Description
TotalCount	Integer	The total number of scaling configurations.
PageNumber	Integer	The page number of the returned page.
PageSize	Integer	The number of entries returned per page.
ScalingConfigurations	ScalingConfigurationSetType	A collection of scaling configuration information.

ScalingConfigurationSetType is a collection of ScalingConfigurationItemType.

Parameter	Type	Description
ScalingConfiguration	ScalingConfigurationItemType	The scaling configuration information.

The following table describes the attributes of ScalingConfigurationItemType.

Parameter	Type	Description
ScalingConfigurationId	String	The ID of the scaling configuration.
ScalingConfigurationName	String	The display name of the scaling configuration.
ScalingGroupId	String	The ID of the scaling group to which the scaling configuration belongs.
ImageId	String	The ID of the image file.
InstanceType	String	The ECS instance type.
SecurityGroupId	String	The ID of the security group.
InternetMaxBandwidthIn	Integer	The maximum inbound bandwidth from the Internet. Unit: Mbit/s.
InternetMaxBandwidthOut	Integer	The maximum outbound bandwidth to the Internet. Unit: Mbit/s.
SystemDisk.Category	Integer	The category of the system disk.
DataDisks	DataDiskSetType	A collection of data disk details.
LifecycleState	Integer	The lifecycle of the scaling configuration in the scaling group. Valid values: • Active: The scaling configuration is active in a scaling group. Scaling groups use scaling configurations in the active state to automatically create ECS instances. • Inactive: The scaling configuration is inactive in a scaling group. The scaling group does not use scaling configurations in the inactive state to automatically create ECS instances.
CreationTime	String	The time when the scaling configuration is created.

DataDiskSetType is a collection of DataDiskItemTypes.

Parameter	Type	Description
DataDisk	DataDiskItemType	The data disk information.

The following table describes the attributes of DataDiskItemType.

Parameter	Type	Description
Size	Integer	The size of the disk.
Category	Integer	The category of the disk.
SnapshotId	Integer	The ID of the snapshot used to create data disks.
Device	Integer	The data disk mounting point.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScalingConfiguration
&RegionId=cn-qingdao
&PageSize=50
&<Common request parameters>
```

Sample responses

XML format

```
<DescribeScalingConfigurationsResponse>
    <RequestId>804F240A-8D3E-40A1-BD68-6B333DEA2CA8</RequestId>
    <TotalCount>1</TotalCount>
    <PageNumber>1</PageNumber>
    <PageSize>50</PageSize>
    <ScalingConfigurations>
        <ScalingConfiguration>
            <CreationTime>2014-08-14T10:58Z</CreationTime>
            <ImageId>centos6u5_64_20G_alia****.vhd</ImageId>
            <InstanceType>ecs.t1.xsmall</InstanceType>
            <InternetChargeType>PayByBandwidth</InternetChargeType>
            <InternetMaxBandwidthIn>200</InternetMaxBandwidthIn>
            <InternetMaxBandwidthOut>0</InternetMaxBandwidthOut>
            <LifecycleState>Active</LifecycleState>
            <ScalingConfigurationId>bU5uZHcAgtzwcL4IeDea****</ScalingConfigurationId>
            <ScalingConfigurationName>c1908dd1-690f-4c9b-ab73-350f1f06****</ScalingConfigur
ationName>
            <ScalingGroupId>dE9YbOdCHqaFdFZHXVdD****</ScalingGroupId>
            <SecurityGroupId>sg-280ih****</SecurityGroupId>
            <SystemDiskCategory>cloud</SystemDiskCategory>
            <DataDisks>
              <DataDisk>
                <Size>200</Size>
                <Category>cloud</Category>
                <SnapshotId>s-280s7****</SnapshotId>
                <Device>/dev/xvdb</Device>
              </DataDisk>
            </DataDisks>
        </ScalingConfiguration>
    </ScalingConfigurations>
</DescribeScalingConfigurationsResponse>
```

JSON format

```
{
  "RequestId": "67E4324F-CE14-4C2C-9D60-5422641DB76F",
  "TotalCount": 1,
  "PageNumber": 1,
  "PageSize": 1,
  "ScalingConfigurations": {
    "ScalingConfiguration": [
      {
        "ScalingConfigurationId": "eqkz17cfW3clcPExOtL****",
        "SecurityGroupId": "sg-28oew****",
        "CreationTime": "2014-08-18T21:07Z",
        "SystemDiskCategory": "cloud",
        "InternetMaxBandwidthIn": 200,
        "InternetMaxBandwidthOut": 0,
        "LifecycleState": "Inactive",
        "InternetChargeType": "PayByBandwidth",
        "ImageId": "rhel5u7_64_20G_alia****.vhd",
        "InstanceType": "ecs.s2.small",
        "ScalingConfigurationName": "LxVdcO****",
        "ScalingGroupId": "dRsEAGdvbjR5c4SVc2bq****",
        "DataDisks":{
              "DataDisk":[{
                "Size":200,
                "Category": cloud,
                "SnapshotId": s-280s7****,
                "Device":" /dev/xvdb"
               }]
         }
      }
    ]
  }
}
```


4.1.2.1.8.3. DeleteScalingConfiguration

You can call this operation to delete a scaling configuration.

Description

- A scaling configuration that is active in a scaling group cannot be deleted.
- If any ECS instances that are created by a scaling configuration are still in a scaling group, the scaling configuration cannot be deleted.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteScalingConfiguration.

Parameter	Type	Required	Description
ScalingConfigurationId	String	Yes	The ID of the scaling configuration.

Response parameters

For more information, see Common response parameters.

Error codes

For more information about common error codes, see Client errors or Server errors.

Description	Error code	Error message	HTTP status code
The error message returned because the specified scaling configuration does not exist in the current account.	InvalidScalingConfigurationId.NotFound	The specified scaling configuration does not exist.	404
The error message returned because the specified scaling configuration is not in the Inactive state.	IncorrectScalingConfigurationLifecycleState	The current lifecycle state of specified scaling configuration does not support this action.	400
The error message returned because the specified scaling configuration still has associated ECS instances.	InstanceInUse	You cannot delete a scaling configuration or scaling group while there is an instance associated with it.	400

Examples

Sample requests

```
http://ess.example.com/?Action=DeleteScalingConfiguration
&ScalingConfigurationId=eOs27Kb0oXvQcUYjEGel****
&<Common request parameters>
```

Sample responses

XML format

```
<DeleteScalingConfigurationResponse>
    <RequestId>61D30272-7111-44D9-BB45-FCB55E4A1410</RequestId>
</DeleteScalingConfigurationResponse>
```

JSON format

```
{
    "RequestId": "61D30272-7111-44D9-BB45-FCB55E4A1410"
}
```

4.1.2.1.9. Scaling rules

4.1.2.1.9.1. CreateScalingRule

You can call this operation to create a scaling rule.

A scaling rule defines specific scaling actions, such as attaching or removing Elastic Compute Service (ECS) instances and determining the number of instances to be scaled.

If the number of ECS instances in a scaling group is smaller than MinSize or greater than MaxSize after the execution of a rule, Auto Scaling automatically adjusts the number of ECS instances to be added or removed by executing the "Adjust scaling group instance number to MinSize" or "Adjust scaling group instance number to MaxSize" rule.

- Example 1: A scaling group has a MaxSize of 3, a TotalCapacity of 2, and a scaling rule of adding three ECS instances. When executing this scaling rule, Auto Scaling adds only one instance to the group to prevent TotalCapacity from exceeding MaxSize. (The values in the scaling rule are not changed.)
- Example 2: A scaling group has a MinSize of 2, a TotalCapacity of 3, and a scaling rule of removing five ECS instances. When executing this scaling rule, Auto Scaling removes only one instance from the group to prevent TotalCapacity from becoming smaller than MinSize. (The values in the scaling rule are not changed.)

Description

You can create scaling rules based on input parameters.

- When the AdjustmentType value is TotalCapacity, the number of ECS instances currently in the scaling group is adjusted to the specified value. The corresponding AdjustmentValue value cannot be less than 0.
- When the AdjustmentType value is QuantityChangeInCapacity or PercentChangeInCapacity, a positive number of the AdjustmentValue value indicates adding ECS instances, and a negative number of the AdjustmentValue value indicates removing ECS instances.
- When AdjustmentType is set to PercentChangeInCapacity, Auto Scaling rounds the number of ECS instances to be scaled to the nearest integer based on the formula: Number of ECS instances to be scaled = Current number of instances × Value of AdjustmentValue/100.
- When the cool-down time (Cooldown) is specified in a scaling rule, the specified time is applied to the scaling group after this rule is executed. Otherwise, the DefaultCooldown is applied to the scaling group.
- A scaling group can have a maximum of 10 scaling rules.
- The following APIs use the unique identifier of a scaling rule (ScalingRuleAri) returned by this operation:
  - ExecuteScalingRule: You can call this operation to manually run a specified scaling rule by setting ScalingRuleAri to the identifier.
  - CreateScheduledTask: You can call this operation to create a periodically executed task for a specified scaling rule by setting ScheduledAction to the identifier.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateScalingRule.
ScalingGroupId	String	Yes	The ID of the scaling group to which the scaling rule belongs.
AdjustmentType	String	Yes	The adjustment mode of the scaling rule. Valid values: • QuantityChangeInCapacity: adds or removes a specified number of ECS instances. • PercentChangeInCapacity: adds or removes a specified proportion of ECS instances. • TotalCapacity: adds or removes ECS instances to ensure that the current scaling group has a specified number of ECS instances.
AdjustmentValue	Integer	Yes	The number of ECS instances that are added or released when scaling occurs. • QuantityChangeInCapacity: (0, 100] U (-100, 0] • PercentChangeInCapacity: [0, 10000] U [-10000, 0] • TotalCapacity: [0, 100]
ScalingRuleName	String	No	The display name of the scaling rule. The name must be 2 to 40 characters in length. It must start with a letter or digit. It can contain digits, uppercase letters, lowercase letters, underscores (_), hyphens (-), and periods (.). The name of a scaling rule must be unique within the scaling group that it belongs to. If you do not specify this parameter, the default value (ScalingRuleId) is used.
Cooldown	Integer	No	The cool-down time of the scaling rule. Valid values: 0 to 86,400. Unit: seconds. Default value: empty.

Response parameters

Parameter	Type	Description
ScalingRuleId	String	The globally unique scaling rule ID generated by the system.
ScalingRuleAri	String	The unique identifier of the scaling rule.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned when the scaling rule name already exists.	InvalidScalingRuleName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400
The error message returned when the number of scaling rules in the specified scaling group reaches the upper limit.	QuotaExceeded.ScalingRule	Scaling rule quota exceeded in the specified scaling group.	400

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScalingRule
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&AdjustmentType=QuantityChangeInCapacity
&AdjustmentValue=-10
&<Common request parameter>
```

Response examples

XML format

```
<CreateScalingRuleResponse>
    <RequestId>570C84F4-A434-488A-AFA1-1E3213682B33</RequestId>
    <ScalingRuleId>eMKWG8SRNb9dBLAjweN****</ScalingRuleId>
    <ScalingRuleAri>ari:acs:ess:cn-qingdao:1344371:scalingrule/eMKWG8SRNb9dBLAjweN****</Sca
lingRuleAri>
</CreateScalingRuleResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "ScalingRuleId": "eMKWG8SRNb9dBLAjweN****",
    "ScalingRuleAri":"ari:acs:ess:cn-qingdao:1344371:scalingrule/eMKWG8SRNb9dBLAjweN****"
}
```

4.1.2.1.9.2. ModifyScalingRule

You can modify a scaling rule.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyScalingRule.
ScalingRuleId	String	Yes	The ID of the scaling rule.
AdjustmentType	String	No	The adjustment type of the scaling rule. Valid values: • QuantityChangeInCapacity: adds or removes the specified number of ECS instances. • PercentChangeInCapacity: adds or removes the specified proportion of ECS instances. • TotalCapacity: adds or removes ECS instances to ensure that the current scaling group has the specified number of ECS instances.
AdjustmentValue	Integer	No	The number of ECS instances that are added or released when scaling occurs. Valid values: • QuantityChangeInCapacity: (0, 100] U [-100, 0) • PercentChangeInCapacity: [0, 10000] U [-10000, 0] • TotalCapacity: [0, 100]

Parameter	Type	Required	Description
ScalingRuleName	String	No	The display name of the scaling rule. The name must be 2 to 40 characters in length. It must start with a letter or number. It can contain numbers, uppercase letters, lowercase letters, underscores (_), hyphens (-), and periods (.). The name of a scaling rule must be unique within the scaling group that it belongs to. If you do not specify this parameter, the default value (ScalingRuleId) is used.
Cooldown	Integer	No	The cool-down time of the scaling rule. Valid values: 0 to 86,400. Unit: second. Default value: empty.

Response parameters

parameter	Type	Description
ScalingRuleId	String	The globally unique scaling rule ID generated by the system.
ScalingRuleAri	String	The unique identifier of the scaling rule.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned when the scaling rule name already exists.	InvalidScalingRuleName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400

Error message	Error code	Description	HTTP status code
The error message returned when the number of scaling rules in the specified scaling group reach the upper limit.	QuotaExceeded.ScalingRule	Scaling rule quota exceeded in the specified scaling group.	400

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScalingRule
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&AdjustmentType=QuantityChangeInCapacity
&AdjustmentValue=-10
&<Common request parameter>
```

Response examples

XML format

```
<CreateScalingRuleResponse>
    <RequestId>570C84F4-A434-488A-AFA1-1E3213682B33</RequestId>
    <ScalingRuleId>eMKWG8SRNb9dBLAjweN****</ScalingRuleId>
    <ScalingRuleAri>ari:acs:ess:cn-qingdao:1344371:scalingrule/eMKWG8SRNb9dBLAjweN****</Sca
lingRuleAri>
</CreateScalingRuleResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "ScalingRuleId": "eMKWG8SRNb9dBLAjweN****",
    "ScalingRuleAri":"ari:acs:ess:cn-qingdao:1344371:scalingrule/eMKWG8SRNb9dBLAjweN****"
}
```

4.1.2.1.9.3. DescribeScalingRules

You can query information about scaling rules. You can query all scaling rules in a scaling group by specifying the scaling group ID.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeScalingRules.

Parameter	Type	Required	Description
RegionId	String	Yes	The ID of the region where the scaling group to which a scaling rule belongs is located.
ScalingGroupId	String	No	The ID of the scaling group to which a scaling rule belongs.
ScalingRuleId.N	String	No	The ID of scaling rule N. N ranges from 1 to 10. The IDs of inactive scaling rules are ignored in the query result and no error is reported.
ScalingRuleName.N	String	No	The name of scaling rule N. N ranges from 1 to 10. The names of inactive scaling rules are ignored in the query result and no error is reported.
ScalingRuleAri.N	String	No	The unique identifier of scaling rule N. N ranges from 1 to 10. The unique identifiers of inactive scaling rules are ignored in the query result and no error is reported.
PageNumber	Integer	No	The page number of the scaling rule list. The initial value and default value are both 1.
PageSize	Integer	No	The number of lines per page in paged query. Maximum value: 50. Default value: 10.

Response parameters

parameter	Type	Description
TotalCount	Integer	The total number of scaling rules.
PageNumber	Integer	The number of the current page.
PageSize	Integer	The number of lines per page.
ScalingRules	ScalingRuleSetType	A collection of details about the scaling rules you queried.

The ScalingRuleSetType is a collection of the ScalingRuleItemType.

Parameter	Type	Description
ScalingRule	ScalingRuleItemType	The details of a scaling rule.

The following table describes the attributes of ScalingRuleItemType.

Parameter	Type	Description
ScalingRuleId	String	The ID of the scaling rule.
ScalingGroupId	String	The ID of a scaling group.
ScalingRuleName	String	The name of a scaling rule.
Cooldown	Integer	The cool-down time of the scaling rule.
AdjustmentType	String	The adjustment method of the scaling rule.
AdjustmentValue	Integer	The adjustment value of the scaling rule.
ScalingRuleAri	String	The unique identifier of the scaling rule.

Error code

For more information about common error codes, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=DescribeScalingRules
&RegionId=cn-qingdao
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&PageSize=50
&<Common request parameter>
```

Response examples

XML format

```
<DescribeScalingRulesResponse>
    <PageNumber>1</PageNumber>
    <PageSize>50</PageSize>
    <ScalingRules>
        <ScalingRule>
            <AdjustmentType>QuantityChangeInCapacity</AdjustmentType>
            <AdjustmentValue>1</AdjustmentValue>
            <Cooldown>20</Cooldown>
            <ScalingGroupId>AG6CQdPU8OKdwLjgZcJ****</ScalingGroupId>
            <ScalingRuleAri>ari:acs:ess:cn-qingdao:1344371:scalingRule/eMKWG8SRNb9dBLAjweN*
***</ScalingRuleAri>
            <ScalingRuleId>eMKWG8SRNb9dBLAjweN****</ScalingRuleId>
            <ScalingRuleName>eMKWG8SRNb9dBLAjweN****</ScalingRuleName>
        </ScalingRule>
    </ScalingRules>
    <TotalCount>1</TotalCount>
    <RequestId>3306A40D-3412-4101-9F19-5F81E3055DAD</RequestId>
</DescribeScalingRulesResponse>
```

JSON format

```
{
  "RequestId": "B583BFEF-A779-427A-9B74-262DDD249702",
  "TotalCount": 1,
  "PageNumber": 1,
  "PageSize": 10,
  "ScalingRules": {
  "ScalingRule": [
      {
        "ScalingRuleId": "efcqrZdjlookc0UkE3dA****",
        "ScalingRuleAri": "ari:acs:ess:cn-qingdao:1344371:scalingRule/efcqrZdjlookc0UkE3dA*
***",
        "Cooldown": 500,
        "ScalingGroupId": "ccMvs9dcZlE5c9CtrwbX****",
        "AdjustmentType": "TotalCapacity",
        "ScalingRuleName": "KFJoxG****",
        "AdjustmentValue": 5
      }
    ]
  }
}
```

4.1.2.1.9.4. DeleteScalingRule

You can delete the specified scaling rule.

Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteScalingRule.
ScalingRuleId	String	Yes	The ID of the scaling rule.

Response parameters

For more information about response parameters, see Common response parameters.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling rule does not exist under this account.	InvalidScalingRuleId.NotFound	The specified scaling rule does not exist.	404

Examples

Sample requests

```
http://ess.example.com/?Action=DeleteScalingRule
&ScalingRuleId=eMKWG8SRNb9dBLAjweN****
&<Common request parameter>
```

Response examples

XML format

```
<DeleteScalingRuleResponse>
    <RequestId>F0595173-CA3A-4597-B0D3-97A07A042B9C</RequestId>
</DeleteScalingRuleResponse>
```

JSON format

```
{
    "RequestId": "F0595173-CA3A-4597-B0D3-97A07A042B9C"
}
```

4.1.2.1.10. Scaling tasks

4.1.2.1.10.1. ExecuteScalingRule

You can run a specified scaling rule.

Description

You can call this operation to run a scaling rule.

- You can only call this operation when the scaling group is active.
- You can only call this operation when the scaling group is not currently undergoing any scaling activities.
- If the scaling group does not have any scaling activities in progress, the operation can be immediately run without the need to wait for the cooldown period to expire.
- When you call this operation successfully, Auto Scaling receives the request and the scaling activity can be run. However, this operation may be unsuccessful. You can use the returned ScalingActivityId parameter to view the status of the scaling activity.
- If the number of ECS instances to be added would leave the number of instances in the scaling group greater than MaxSize, the rule Total Capacity = MaxSize is applied.
- If the number of ECS instances to be removed would leave the number of instances in the scaling group less than MinSize, the rule Total Capacity = MinSize is applied.
- A maximum of 100 ECS instances can be scaled automatically over all groups in all regions.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ExecuteScalingRule.
ScalingRuleAri	String	Yes	The unique identifier of the scaling rule.
ClientToken	String	No	This parameter is used to ensure the idempotence of the request. The value of this parameter is generated by the client and is unique among different requests. The maximum length is 64 ASCII characters. For more information about the ClientToken, see Ensure idempotence.

Response parameters

parameter	Type	Description
ScalingActivityId	String	The ID of the scaling activity.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling rule does not exist under this account.	InvalidScalingRuleAri.NotFound	The specified scaling rule Ari does not exist.	404
The error message returned when Auto Scaling does not have full authorization to Open API.	Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	403
The error message returned when the scaling group to which the specified scaling rule belongs is inactive.	IncorrectScalingGroupStatus	The current status of the specified scaling group does not support this action.	400
The error message returned when the scaling group to which the specified scaling rule belongs has a scaling activity.	ScalingActivityInProgress	You cannot delete a scaling group or launch a new scaling activity while there is a scaling activity in progress for the specified scaling group.	400
The error message returned when the number of ECS instances under this account reach the upper limit.	QuotaExceed.Instance	Living instance quota exceeded.	400
The error message returned when the Server Load Balancer instance in the scaling group to which the specified scaling rule belongs is not active.	IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400
The error message returned when the health check is not enabled for the SLB instance in the scaling group to which the specified scaling rule belongs.	IncorrectLoadBalancerHealthCheck	The current health check type of the specified load balancer does not support this action.	400

Error message	Error code	Description	HTTP status code
The error message returned when the network type of the ECS instance connected to the specified SLB instance is different from that of the scaling group.	InvalidLoadBalancerId.IncorrectInstanceNetworkType	The network type of the instance in the specified load balancer does not support this action.	400
The error message returned when the ECS instance connected to the SLB instance of the specified scaling group and the VSwitch are not in the same VPC.	InvalidLoadBalancerId.VPCMismatch	The specified virtual switch and the instance in the specified load balancer are not in the same VPC.	400
The error message returned when the RDS instance in the scaling group to which the specified scaling rule belongs is not running.	IncorrectDBInstanceStatus	The current status of DB instance "XXX" does not support this action.	400
The error message returned when the number of IP addresses in the RDS instance whitelist in the scaling group to which the scaling rule belongs reach the upper limit.	QuotaExceeded.DBInstanceSecurityIP	Security IP quota exceeded in DB instance "XXX".	400
The error message returned when the number of ECS instances already added to the specified security group reach the upper limit.	QuotaExceeded.SecurityGroupInstance	Instance quota exceeded in the specified security group.	400
The error message returned when there is no change in the number of instances in the scaling group after the scaling rule is executed.	IncorrectCapacity.NoChange	To execute the specified scaling rule, the total capacity will not change.	400

Error message	Error code	Description	HTTP status code
The error message returned when the number of ECS instances of Auto Scaling reach the upper limit.	QuotaExceeded.ScalingInstance	Scaling instance quota exceeded.	400
The error message returned when the ECS instance or disk of the specified type cannot be created in the specified region.	ResourceNotAvailable.ECS	The specified region or zone does not offer the specified disk or instance category.	400

Examples

Sample requests

```
http://ess.example.com/?Action=ExecuteScalingRule
&ScalingRuleAri=ari:acs:ess:cn-qingdao:1344371:scalingRule/cCBpdYdQuBe2cUxOdu6****
&<Common request parameter>
```

Response examples

XML format

```
<ExecuteScalingRuleResponse>
   <RequestId>262216B9-F9D4-4D16-BE9B-BD1C39A4F42B</RequestId>
   <ScalingActivityId>ebta5WbUzC8gcwUWvfch****</ScalingActivityId>
</ExecuteScalingRuleResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE",
    "ScalingActivityId": "ebta5WbUzC8gcwUWvfch****"
}
```

4.1.2.1.10.2. AttachInstances

You can call this operation to add Elastic Compute Service (ECS) instances to a specified scaling group.

Description

- The restrictions on an added ECS instance are as follows:
  - The added ECS instance and the scaling group must be in the same region.
  - The added ECS instance must be running.
  - The added ECS instance cannot be added to another scaling group.

  - If the VSwitchId parameter is specified for a scaling group, Elastic Compute Service instances which reside in a classic network or in other VPCs cannot be added to the scaling group.
  - If the VSwitchId parameter is not specified for a scaling group, ECS instances of the VPC network type cannot be added to the scaling group.
- This operation can only be called when the scaling group is active.
- This operation can only be called when the scaling group is not currently undergoing any scaling activities.
- If the scaling group does not have any scaling activities in progress, the operation can be immediately run without the need to wait for the cooldown period to expire.
- When this operation is called, Auto Scaling receives the request. However, it is not guaranteed that the scaling activity can be run as intended. You can use the returned ScalingActivityId parameter to view the status of the scaling activity.
- When the sum of the number of ECS instances currently in the scaling group (Total Capacity) and the number of instances to be added specified by this operation is greater than MaxSize, calling the operation fails.
- Manually added ECS instances are not associated with the active scaling configuration of the scaling group.

Request parameters

Request parameter description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to AttachInstances.
ScalingGroupId	String	Yes	The ID of the scaling group.
InstanceId.N	String	Yes	The ID of the ECS instance. N ranges from 1 to 20.

Response parameters

parameter	Type	Description
ScalingActivityId	String	The ID of the scaling activity.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned when Auto Scaling does not have full authorization with Open API.	Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	403
The error message returned when the specified scaling group is inactive.	IncorrectScalingGroupStatus	The current status of the specified scaling group does not support this action.	400
The error message returned when the specified ECS instance does not exist under this account.	InvalidInstanceId.NotFound	Instance "XXX" does not exist.	404
The error message returned when the specified Elastic Compute Service instance and the scaling group are not in the same region.	InvalidInstanceId. RegionMismatch	Instance "XXX" and the specified scaling group are not in the same Region.	400
The error message returned when the specified Elastic Compute Service instance type is different from that of the active scaling configuration.	InvalidInstanceId.InstanceTypeMismatch	Instance "XXX" and existing active scaling configurations have different instance types.	400
The error message returned when the specified Elastic Compute Service instance is not running.	IncorrectInstanceStatus	The current status of instance "XXX" does not support this action.	400

Error message	Error code	Description	HTTP status code
The error message returned when the network type of the specified ECS instance is different from that of the scaling group.	InvalidInstanceId.NetworkTypeMismatch	The network type of instance "XXX" does not support this action.	400
The error message returned when the added ECS instance and the specified scaling group are not in the same Virtual Private Cloud.	InvalidInstanceId.VPCMismatch	Instance "XXX" and the specified scaling group are not in the same Virtual Private Cloud.	400
The error message returned when the specified ECS instance is added to another scaling group.	InvalidInstanceId.InUse	Instance "XXX" is already added to another scaling group.	400
The error message returned when the specified scaling group has a scaling activity in progress.	ScalingActivityInProgress	You cannot delete a scaling group or launch a new scaling activity while there is a scaling activity in progress for the specified scaling group.	400
The error message returned when the SLB instance in the specified scaling group is inactive.	IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400
The error message returned when the health check is not enabled for the specified SLB instance.	IncorrectLoadBalancerHealthCheck	The current health check type of specified load balancer does not support this action.	400

Error message	Error code	Description	HTTP status code
The error message returned when the network type of the ECS instance connected to the specified SLB instance is different from that of the scaling group.	InvalidLoadBalancerId.IncorrectInstanceNetworkType	The network type of the instance in the specified load balancer does not support this action.	400
The error message returned when the Elastic Compute Service instance connected to the SLB instance of the specified scaling group and the VSwitch are not in the same VPC.	InvalidLoadBalancerId.VPCMismatch	The specified virtual switch and the instance in the specified load balancer are not in the same Virtual Private Cloud.	400
The error message returned when the RDS instance in the specified scaling group is not running.	IncorrectDBInstanceStatus	The current status of DB instance "XXX" does not support this action.	400
The error message returned when the number of IP addresses in the specified RDS instance whitelist reach the upper limit.	QuotaExceeded.DBInstanceSecurityIP	Security IP quota exceeded in DB instance "XXX".	400
The error message returned when the number of ECS instances in the specified security group reach the upper limit.	QuotaExceeded.SecurityGroupInstance	Instance quota exceeded in the specified security group.	400

Error message	Error code	Description	HTTP status code
The error message returned when the total number of ECS instances (Total Capacity) exceed MaxSize after an instance is added to the specified scaling group.	IncorrectCapacity.MaxSize	To add the instances, the total capacity will be greater than the MaxSize.	400

Examples

Sample requests

```
http://ess.example.com/?Action=AttachInstances
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&InstanceId. 1=i-28wt4****
&<Common request parameter>
```

Response examples

XML format

```
<AttachInstancesResponse>
    <RequestId>DD0309B7-2613-4792-9B86-275906695253</RequestId>
    <ScalingActivityId>bybj9OcaOT4ucPMbFhcqHfA3</ScalingActivityId>
</AttachInstancesResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE",
    "ScalingActivityId":"ebta5WbUzC8gcwUWvfch****"
}
```

4.1.2.1.10.3. RemoveInstances

You can remove ECS instances from a specified scaling group.

Description

- When an ECS instance automatically created by Auto Scaling is removed from a scaling group, the ECS instance is stopped and released.
- When a manually added ECS instance is removed from a scaling group, the ECS instance is neither stopped nor released.
- This operation can only be called when the scaling group is active.
- You can only call this operation when the scaling group does not currently have any scaling activities.
- If no scaling activity in the scaling group is in progress, the operation can be run immediately without

waiting for cooldown to expire.

- When this operation is called, Auto Scaling receives the request. However, it is not guaranteed that the scaling activity can be run as intended. You can use the returned ScalingActivityId parameter to check the status of the scaling activity.
- When the difference between the number of ECS instances currently in the scaling group (Total Capacity) and the number of ECS instances to be removed is smaller than MinSize, calling the operation fails.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to RemoveInstances.
ScalingGroupId	String	Yes	The ID of the scaling group.
InstanceId.N	String	Yes	The ID of the ECS instance. N ranges from 1 to 20.

Response parameters

Parameter	Type	Description
ScalingActivityId	String	The ID of the scaling activity.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group does not exist under this account.	InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404
The error message returned when the specified ECS instance does not exist in the scaling group.	InvalidInstanceId.NotFound	Instance "XXX" does not exist.	404
The error message returned when Auto Scaling does not have full authorization to Open API.	Forbidden.Unauthorized	The required authorization for the specified action is not supplied.	403

Error message	Error code	Description	HTTP status code
The error message returned when the specified scaling group is not active.	IncorrectScalingGroupStatus	The current status of the specified scaling group does not support this action.	400
The error message returned when the specified scaling group is currently undergoing a scaling activity.	ScalingActivityInProgress	You cannot delete a scaling group or launch a new scaling activity while there is a scaling activity in progress for the specified scaling group.	400
The error message returned when the SLB instance in the scaling group to which the specified scaling rule belongs is inactive.	IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400
The error message returned when the RDS instance in the scaling group to which the specified scaling rule belongs is not running.	IncorrectDBInstanceStatus	The current status of DB instance "XXX" does not support this action.	400
The error message returned when the number of ECS instances to be removed will leave fewer total ECS instances than MinSize.	IncorrectCapacity.MinSize	To remove the instances, the total capacity will be lesser than the MinSize.	400

Examples

Sample requests

```
http://ess.example.com/?Action=RemoveInstances
&ScalingGroupId=AG6CQdPU8OKdwLjgZcJ****
&InstanceId. 1=i-28wt4****
&<Common request parameter>
```

Response examples

XML format

```
<RemoveInstancesResponse>
    <RequestId>DD0309B7-2613-4792-9B86-275906695253</RequestId>
    <ScalingActivityId>bybj9OcaOT4ucPMbFhcq****</ScalingActivityId>
</RemoveInstancesResponse>
```

JSON format

```
{
    "RequestId": "6469DCD0-13AC-487E-85A0-CE4922908FDE",
    "ScalingActivityId": "ebta5WbUzC8gcwUWvfch****"
}
```

4.1.2.1.10.4. DetachInstances

You can call this operation to remove one or more Elastic Compute Service (ECS) instances from a scaling group.

Description

After an ECS instance is removed, it can either exist independent of any scaling group or be added to another scaling group. For more information about AttachInstances, see AttachInstances. Removing an ECS instance does not stop or release it. You can manually stop or release an ECS instance as needed. When calling this operation, you must take note of the following points:

- The specified scaling group must be enabled.
- The specified scaling group must not have any scaling activities in progress.
- If there is no scaling activity currently in progress in the scaling group, the operation can be immediately run without waiting for the cooldown period to expire.
- When this operation is called successfully, Auto Scaling receives the request. The scaling activity can be triggered, but it is not guaranteed that the scaling activity can be successfully run. You can use the ScalingActivityId parameter returned in the response to query the status of the scaling activity.
- The difference between the number of ECS instances currently in the specified scaling group and the number of ECS instances to be removed must not be smaller than MinSize.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DetachInstances.
ScalingGroupId	String	Yes	The ID of the scaling group.
InstanceId.N	String	Yes	The ID of the ECS instance. N can be an integer from 1 to 20.

Response parameters

Parameter	Type	Description
RequestId	String	The request ID.
ScalingActivityId	String	The ID of the scaling activity.

Examples

Sample requests

```
http://ess.example.com/?Action=DetachInstances
&ScalingGroupId=AG6CQdPU8OKdwLj****
&InstanceId. 1=i-28wt4****
& <Common request parameters>
```

Response examples

XML format

```
<DetachInstancesResponse>
    <RequestId>04F0F334-1335-436C-A1D7-6C044FE73368</RequestId>
    <ScalingActivityId>asa-xxxxxxxxx</ScalingActivityId>
</DetachInstancesResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "ScalingActivityId":"asa-****"
}
```

Error code

Error code	Error message	HTTP status code	Description
IncorrectScalingGroupStatus	The current status of the specified scaling group does not support this action.	400	The error message returned when the specified scaling group is not enabled.
ScalingActivityInProgress	You cannot delete a scaling group or launch a new scaling activity while there is a scaling activity in progress for the specified scaling group.	400	The error message returned when the specified scaling group currently has a scaling activity.
IncorrectLoadBalancerStatus	The current status of the specified load balancer does not support this action.	400	The error message returned when the SLB instance is not active in the specified scaling group.

Error code	Error message	HTTP status code	Description
IncorrectDBInstanceStatus	The current status of DB instance "XXX" does not support this action.	400	The error message returned when the RDS instance in the specified scaling group is not running.
IncorrectCapacity.MinSize	To remove the instances, the total capacity will be lesser than the MinSize.	400	The error message returned when removing a number of ECS instances from a scaling group, which will cause the group to contain fewer ECS instances than the MinSize value.
Forbidden.Unauthorized	A required authorization for the specified action is not supplied.	403	The error message returned when you are not authorized to call this operation.
InvalidScalingGroupId.NotFound	The specified scaling group does not exist.	404	The error message returned when the specified scaling group does not exist.
InvalidInstanceId.NotFound	Instance "XXX" does not exist.	404	The error message returned when the specified ECS instance does not exist.

4.1.2.1.11. Scheduled tasks

4.1.2.1.11.1. CreateScheduledTask

You can call this operation to create scheduled tasks based on specified input parameters.

Description

- You can create a maximum of 20 scheduled tasks.
- When a scheduled task fails to trigger due to an ongoing scaling activity in a scaling group or the scaling group is disabled, the scheduled task will be retried for the duration of the launch expiration time. After the duration of the launch expiration time, a scheduled task that has failed to be triggered will be abandoned.
- If multiple tasks are scheduled at similar times to run scaling rules in the same group, the earliest task will run its scaling activity first. Other tasks will make attempts to execute their rules during their launch expiration time, but only one scaling activity can be run in a scaling group at a time. If the previous scaling activity is completed while another scheduled task is making triggering attempts during its launch expiration time, the scaling rule is executed and the corresponding scaling activity is triggered.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateScheduledTask.
RegionId	String	Yes	The ID of the region where the scheduled task is located.
ScheduledAction	String	Yes	The operations to be performed when the scheduled task is triggered. When you set this parameter, you must also enter the unique identifier of the scaling rule.
LaunchTime	String	Yes	The time at which the scheduled task is triggered. Specify the time in the ISO 8601 standard in the YYYY-MM-DDThh:mmZ format. The time must be in UTC. If the RecurrenceType parameter is specified, the task will be executed repeatedly at the time specified by LaunchTime. If the RecurrenceType parameter is not specified, the task is only executed once at the date and time specified by LaunchTime. You cannot enter a time point later than 90 days from the scheduled task creation or modification.
ScheduledTaskName	String	No	The display name of the scheduled task. The name must be 2 to 40 characters in length and can contain digits, letters, underscores (_), hyphens (-), and periods (.). It must start with a letter or digit. The name of the scheduled task must be unique within the same region for the same Alibaba Cloud tenant account. If you do not specify this parameter, the default value is ScheduledScalingTaskId.

Parameter	Type	Required	Description
Description	String	No	The description of the scheduled task. The description must be 2 to 200 characters in length.
LaunchExpirationTime	Integer	No	The time period during which a failed scheduled task is retried. Default value: 600. Unit: seconds. Valid values: 0 to 21600.
RecurrenceType	String	No	The type of the scheduled task to be repeated. Valid values: • Daily: The scheduled task is executed once after the specified number of days. • Weekly: The scheduled task is executed on each specified day of a week. • Monthly: The scheduled task is executed on each specified day of a month. • If you set RecurrenceType, you must also set both RecurrenceEndTime and RecurrenceValue.
RecurrenceValue	String	No	The recurrence value of the scheduled task to be repeated. • Daily: You can enter a single value ranging from 1 to 31. • Weekly: You can enter multiple values corresponding to the days of the week. The values of Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday are 0 to 6 in sequence. Separate multiple values with commas (,). • Monthly: You can enter two values ranging from 1 to 31. The format is A-B. B must be greater than or equal to A. If you set RecurrenceValue, you must also set both RecurrenceEndTime and RecurrenceType.

Parameter	Type	Required	Description
RecurrenceEndTime	String	No	The end time of the scheduled task to be repeated. Specify the time in the ISO 8601 standard in the YYYY-MM-DDThh:mmZ format. The time must be in UTC. You cannot enter a time point later than 90 days from the scheduled task creation or modification. If you set RecurrenceEndTime, you must also set both RecurrenceValue and RecurrenceType.
TaskEnabled	Bool	No	Specifies whether to start the scheduled task. • true: starts the scheduled task. • false: stops the scheduled task. Default value: true.

Response parameters

Parameter	Type	Description
ScheduledTaskId	String	The globally unique ID of the scheduled task generated by the system.

Error codes

For more information about errors common to all operations, see Client errors or Server errors.

Description	Error code	Error message	HTTP status code
The error message returned because the specified region does not exist.	InvalidRegionId.NotFound	The specified region does not exist.	404
The error message returned because the name of the scheduled task already exists.	InvalidScheduledTaskName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400

Description	Error code	Error message	HTTP status code
The error message returned because the specified ScheduledAction parameter and the scheduled task are not in the same region.	ScheduledAction.RegionMismatch	The specified scheduled task and the specified scheduled action are not in the same Region.	400
The error message returned because the number of scheduled tasks created by you reaches the upper limit.	QuotaExceeded.ScheduledTask	Scheduled task quota exceeded.	400

Examples

Sample requests

```
http://ess.example.com/?Action=CreateScheduledTask
&RegionId=cn-qingdao
&LaunchTime=2014-08-17T16:52Z
&RecurrenceType=Daily
&RecurrenceValue=1
&RecurrenceEndTime=2014-08-17T16:55Z
&ScheduledAction=ari:acs:ess:cn-qingdao:1344371:scalingRule/cCBpdYdQuBe2cUxOdu6****
&<Common request parameters>
```

Sample responses

XML format

```
<CreateScheduledTaskResponse>
    <RequestId>0F02D931-2B12-44D7-A0E9-39925C13D15E</RequestId>
    <ScheduledTaskId>edRtShc57WGXdt8TlPbr****</ScheduledTaskId>
</CreateScheduledTaskResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368",
    "ScheduledTaskId": "edRtShc57WGXdt8TlPbr****"
}
```

4.1.2.1.11.2. ModifyScheduledTask

You can modify a scheduled task.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyScheduledTask.
ScheduledTaskId	String	Yes	The ID of the scheduled task.
ScheduledTaskName	String	No	The display name of the scaling rule. The name must be 2 to 40 characters in length. It must start with a letter or number. It can contain numbers, uppercase letters, lowercase letters, underscores (_), hyphens (-), and periods (.). The name of the scheduled task must be unique within the same region for the same Alibaba Cloud account. If you do not specify this parameter, the default value (ScheduledScalingTaskId) is used.
Description	String	No	The description of the scheduled task. It must be 2 to 200 characters in length.
ScheduledAction	String	No	The operation performed when the scheduled task is triggered. Enter the unique identifier of the scaling rule.
LaunchTime	String	No	The time at which the scheduled task is triggered. UTC time is used and complies with the ISO 8601 standard. The format is YYYY-MM-DDThh:mm:ssZ. If the RecurrenceType parameter is specified, the task will be executed repeatedly at the time specified by LaunchTime. If the RecurrenceType parameter is not specified, the task is only executed once at the time specified by LaunchTime. You cannot enter a time point later than 90 days from the date of the scheduled task creation or modification.

Parameter	Type	Required	Description
LaunchExpirationTime	Integer	No	You can retry the task during this time period after the scheduled task fails. Unit: second. Default value: 600. Valid values: [0, 21600].
RecurrenceType	String	No	The type of the scheduled task to be repeated. Valid values: • Daily: The scheduled task is executed once after the specified number of days. • Weekly: The scheduled task is run on each specified day of the week. • Monthly: The scheduled task is run on each specified day of the month. After the scheduled task is modified, RecurrenceType, RecurrenceValue, and RecurrenceEndTime must be valid.

Parameter	Type	Required	Description
RecurrenceValue	String	No	The value determining how often a scheduled task recurs. • Daily: indicates the interval of days that a scheduled task is repeated on. You can enter a single value ranging from 1 to 31. • Weekly: indicates which days of the week that a scheduled task is repeated on. You can enter multiple values separated by commas (,). You can specify numbers from 0 to 6 for days from Sunday to Saturday in sequence. Multiple values must be separated by commas (,). • Monthly: You can enter two values ranging from 1 to 31. The format is A-B. B must be greater than or equal to A. After the scheduled task is modified, RecurrenceType, RecurrenceValue, and RecurrenceEndTime must be valid.
RecurrenceEndTime	String	No	The end time of the scheduled task to be repeated. UTC time is used and complies with the ISO 8601 standard. The format is YYYY-MM-DDThh:mmZ. You cannot enter a time point later than 90 days from the date of scheduled task creation or modification. After the scheduled task is modified, RecurrenceType, RecurrenceValue, and RecurrenceEndTime must be valid.

Parameter	Type	Required	Description
TaskEnabled	Bool	No	Indicates whether to start the scheduled task. • true: indicates the task is started. • false: indicates the task is stopped. Default value: true.

Response parameters

For more information about response parameters, see Common response parameters.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scheduled task does not exist under this account.	InvalidScheduledTaskId.NotFound	The specified scheduled task does not exist.	404
The error message returned when the name of the scheduled task already exists.	InvalidScheduledTaskName.Duplicate	The specified value of parameter `<parameter name>` is duplicated.	400
The error message returned when the specified ScheduledAction parameter and the scheduled task are not in the same region.	ScheduledAction.RegionMismatch	The specified scheduled task and the specified scheduled action are not in the same Region.	400

Examples

Sample requests

```
http://ess.example.com/?Action=ModifyScheduledTask
&ScheduledTaskId=edRtShc57WGXdt8TlPbr****
&LaunchTime=2014-08-18T10:52Z
&RecurrenceEndTime=2014-08-20T16:55Z
&<Common request parameter>
```

Response examples

XML format

```
<ModifyScheduledTaskResponse>
    <RequestId>F9372E8D-C163-471F-BEB4-3A02B3CE176E</RequestId>
</ModifyScheduledTaskResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

4.1.2.1.11.3. DescribeScheduledTasks

You can query information about a scheduled task. You can query information about relevant scheduled tasks by specifying the ScheduledAction parameter.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeScheduledTasks.
RegionId	String	Yes	The ID of the region where a scheduled task is located.
ScheduledTaskId.N	String	No	The ID of scheduled task N. N ranges from 1 to 20. The IDs of inactive scheduled tasks are ignored in the query result and no error is reported.
ScheduledTaskName.N	String	No	The display name of scheduled task N. N ranges from 1 to 20. The names of inactive scheduled tasks are ignored in the query result and no error is reported.
ScheduledAction.N	String	No	The operation performed when scheduled task N is triggered. N ranges from 1 to 20. Inactive operations are ignored in the query result and no error is reported.
PageNumber	Integer	No	The page number of the scheduled task list. The initial value and default value are both 1.

Parameter	Type	Required	Description
PageSize	Integer	No	The number of lines per page in paged query. Maximum value: 50. Default value: 10.

Response parameters

Parameter	Type	Description
TotalCount	Integer	The total number of scheduled tasks.
PageNumber	Integer	The number of the current page.
PageSize	Integer	The number of lines per page.
ScheduledTasks	ScheduledTaskSetType	A collection of details about the scheduled tasks you queried.

ScheduledTaskSetType is a collection of ScheduledTaskItemType.

Parameter	Type	Description
ScheduledTask	ScheduledTaskItemType	The details of the scheduled task.

The following table describes the attributes of ScheduledTaskItemType.

Parameter	Type	Description
ScheduledTaskId	String	The ID of the scheduled task.
ScheduledTaskName	String	The name of the scheduled task.
Description	String	The description of the scheduled task.
ScheduledAction	String	The operation performed when a scheduled task is triggered.
LaunchTime	String	The time at which the scheduled task is triggered.
LaunchExpirationTime	Integer	You can retry the task during this time period after the scheduled task fails.
RecurrenceType	String	The type of the scheduled task to be repeated.
RecurrenceValue	String	The recurring value of the scheduled task to be repeated.
RecurrenceEndTime	String	The end of the task recurrence period.
TaskEnabled	Bool	Indicates whether to enable a scheduled task.

Error code

For more information about common error codes, see Client errors or Server errors.

Examples

Sample requests

```
http://ess.example.com/?Action=DescribeScheduledTasks
&RegionId=cn-qingdao
&ScheduledTaskId. 1=edRtShc57WGXdt8TlPbr****
&PageSize=50
&<Common request parameter>
```

Response examples

XML format

```
<DescribeScheduledTasksResponse>
    <RequestId>B9B498DA-E836-45FF-83C7-1930492FDD5A</RequestId>
    <TotalCount>1</TotalCount>
    <PageNumber>1</PageNumber>
    <PageSize>50</PageSize>
    <ScheduledTasks>
        <ScheduledTask>
            <Description/>
            <LaunchExpirationTime>600</LaunchExpirationTime>
            <LaunchTime>2014-08-18T10:52Z</LaunchTime>
            <RecurrenceEndTime>2014-08-20T16:55Z</RecurrenceEndTime>
            <RecurrenceType>Daily</RecurrenceType>
            <RecurrenceValue>1</RecurrenceValue>
            <ScheduledAction>ari:acs:ess:cn-qingdao:1344371:scalingrule/cCBpdYdQuBe2cUxOdu6
****</ScheduledAction>
            <ScheduledTaskId>edRtShc57WGXdt8TlPbr****</ScheduledTaskId>
            <ScheduledTaskName>edRtShc57WGXdt8TlPbr****</ScheduledTaskName>
            <TaskEnabled>true</TaskEnabled>
        </ScheduledTask>
    </ScheduledTasks>
</DescribeScheduledTasksResponse>
```

JSON format

```
{
  "RequestId": "43434132-91C4-4264-8343-681130760A5C",
  "TotalCount": 1,
  "PageSize": 1,
  "PageNumber": 1,
  "ScheduledTasks": {
    "ScheduledTask": [
      {
        "TaskEnabled": true,
        "ScheduledTaskId": "b27CLSc8T478c2iqHr6****",
        "Description": "This is a scheduled task test.",
        "ScheduledTaskName": "9906a33f-14eb-42b8-8bdb-ee8cdf91****",
        "LaunchExpirationTime": 120,
        "RecurrenceType": "Daily",
        "RecurrenceEndTime": "2014-08-13T19:19Z",
        "LaunchTime": "2014-08-12T17:55Z",
        "RecurrenceValue": "1",
        "ScheduledAction": "ari:acs:ess:cn-qingdao:1344371:scalingrule/qGx9feK1giadmp3XKer*
***"
      }
    ]
  }
}
```


4.1.2.1.11.4. DeleteScheduledTask

You can call this operation to delete the specified scheduled task.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteScheduledTask.
ScheduledTaskId	String	Yes	The ID of the scheduled task.

Response parameters

For more information about response parameters, see Common response parameters.

Error code

For more information about common error codes, see Client errors or Server errors.

Error message	Error code	Description	HTTP status code
The error message returned when the specified scheduled task does not exist under this account.	InvalidScheduledTaskId.NotFound	The specified scheduled task does not exist.	404

Examples

Sample requests

```
http://ess.example.com/?Action=DeleteScheduledTask
&ScheduledTaskId=edRtShc57WGXdt8TlPbr****
&<Common request parameter>
```

Response examples

XML format

```
<DeleteScheduledTaskResponse>
    <RequestId>7683D637-CF8A-41DC-85A8-E128061E65FC</RequestId>
</DeleteScheduledTaskResponse>
```

JSON format

```
{
    "RequestId": "04F0F334-1335-436C-A1D7-6C044FE73368"
}
```

4.1.2.1.12. Error codes

4.1.2.1.12.1. Client errors

This topic describes the details of errors caused by clients.

Description

HTTP	Error code	Error message	Description
400	MissingParameter	The input parameter `<parameter name>` that is mandatory for processing this request is not supplied.	The error message returned because a required parameter is not specified.
400	InvalidParameter	The specified value of parameter `<parameter name>` is not valid.	The error message returned because the specified parameter is invalid.

HTTP	Error code	Error message	Description
400	UnsupportedOperation	The specified action is not supported.	The error message returned because the specified API operation is invalid.
400	NoSuchVersion	The specified version does not exist.	The error message returned because the specified version is invalid.
400	Throttling	Request was denied due to request throttling.	The error message returned because the specified operation is denied by the throttling system.
400	InvalidAccessKeyId.NotFound	The Access Key ID provided does not exist in our records.	The error message returned because the specified AccessKey pair is invalid.
403	Forbidden	Users are not authorized to operate on the specified resource.	The error message returned because the specified operation is forbidden.
403	Forbidden.RiskControl	This operation is forbidden by Aliyun Risk Control system.	The error message returned because the specified operation is forbidden by the risk control system.
403	SignatureDoesNotMatch	The signature we calculated does not match the one you provided.	The error message returned because the specified signature is invalid.
403	Forbidden.Unsubscribed	Do not have permission to access this API.	The error message returned because you are not authorized to call Auto Scaling API operations.
403	Forbidden.UserVerification	Your user account is not verified by Aliyun.	The error message returned because the real-name verification is not complete.
400	ResourceNotAvailable	Resource you requested is not available in this region or zone.	The error message returned because Auto Scaling is unavailable in the specified region.

4.1.2.1.12.2. Server errors

This topic describes the details of errors caused by servers.

Description

HTTP status code	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error, exception or failure.	The error message returned because the server fails to process the request.
503	ServiceUnavailable	The request has failed due to a temporary failure of the server.	The error message returned because the server fails to process this request.

4.1.2.1.13. Ensure idempotence

This topic describes how to ensure that requests are idempotent by using ClientToken.

If a request times out or an internal server error occurs when the ExecuteScalingRule operation is called to create or release ECS instances, the client may attempt to resend the request. In this case, the client provides the ClientToken parameter to prevent the server from creating or releasing more instances than intended. The ClientToken parameter also ensures that requests are idempotent. The ClientToken value is a unique and case-sensitive string that is generated by the client. The token can only contain ASCII characters and cannot exceed 64 characters in length.

If the same ClientToken value is used to call the CreateInstance operation, the server returns identical request results with identical ScalingActivityId values. Therefore, when the request is resent due to an error, the same ClientToken value can ensure that only one scaling activity is created and the corresponding ScalingActivityId value is obtained.

If you provide a used ClientToken value and other request parameters are different, Auto Scaling returns the `IdempotentParameterMismatch` error code. Note: You must specify the SignatureNonce, Timestamp, and Signature parameters again before the request is resent because Auto Scaling uses SignatureNonce to prevent replay attacks and uses Timestamp to mark the time of each request. Therefore, you must provide different SignatureNonce and Timestamp values. This also produces a different Signature value.

Typically, you only need to configure the client to resend a request in the case of Error 503 (ServiceUnAvailable) or no response. If Error 200 is returned, a retry can obtain the same result as that of the previous request, but the server status is not affected. If Error 4xx or 500 is returned, the request cannot be retried unless the error message states `Try it later`.

5.Resource Orchestration Service (ROS)

5.1. Developer Guide

5.1.1. API Reference

5.1.1.1. List of operations by function

The following tables describe the API operations available for use in Resource Orchestration Service (ROS).

Stack operations

API	Description
CreateStack	Creates a stack.
ContinueCreateStack	Creates a stack based on the template of the previous stack that fails to be created.
UpdateStack	Updates a stack.
CancelUpdateStack	Cancels the update of a stack.
GetStack	Queries information of a stack.
DeleteStack	Deletes a stack.
ListStacks	Queries the list of stacks.
PreviewStack	Previews the stack to be created by using a specified template.
ListStackEvents	Queries stacks and their resource events.

Resource operations

API	Description
GetResourceTypeTemplate	Queries the template of a resource by resource type.
ListStackResources	Queries the resource list of a specific stack.
GetStackResource	Queries information of a resource in a specific stack.
GetResourceType	Queries detailed information of a resource type.
ListResourceTypes	Queries the list of supported resource types.

Template operations

API	Description
GetTemplateEstimateCost	Queries estimated prices of resources to be created based on a template.
ValidateTemplate	Validates a template that is used to create a stack.
GetTemplate	Queries detailed information of a template, including stacks and change sets associated with the template.
DeleteTemplate	Deletes a template.
ListTemplates	Queries the list of templates.
CreateTemplate	Creates a custom template.
UpdateTemplate	Updates a template.
GetTemplateSummary	Queries information of a new or existing template.

Stack policy operations

API	Description
SetStackPolicy	Configures a stack policy.
GetStackPolicy	Queries information of a stack policy.

Other operations

API	Description
DescribeRegions	Queries available regions.
SignalResource	Sends signals.
SetDeletionProtection	Configures deletion protection on a stack.
ListStackOperationRisks	Detects the resources that may face high risks caused by a stack deletion operation, and queries the reason for each risk.

5.1.1.2. Make API calls

To call the ROS API, you must send HTTP GET requests to the endpoint of the ROS API. You must add the request parameters that correspond to the API operation being called. After you call the API operation, the system returns a response. The request and response are both encoded in UTF-8.

Request syntax

ROS API operations use the RPC protocol. You can call ROS API operations by sending HTTP GET requests.

The following example describes the request syntax of a ROS API request:

```
http://Endpoint/?Action=xx&Parameters
```

The following table describes the parameters in the request syntax.

Parameter	Description
Endpoint	The endpoint of the ROS API. Set the value to *ros.aliyuncs.com*.
Action	The name of the operation being performed. For example, to query the list of stacks, set the value to ListStacks.
Parameters	The request parameters for the operation. Separate multiple parameters with ampersands (&). Request parameters include both common parameters and operation-specific parameters. Common parameters include information such as the API version number and authentication information. For more information, see Common parameters.

Sample requests

The following example demonstrates how to call the ListStacks operation to query the list of stacks:

> **Note** The sample requests in this topic are formatted for better readability.

```
http(s)://ros.aliyuncs.com/? Action=ListStacks
&RegionId=cn-hangzhou
&Format=JSON
&Version=2019-09-10
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=1521552885****
&SignatureVersion=1.0
&AccessKeyId=LTAI4GK3D6YtNkNZfjDV****
&TimeStamp=2020-05-01T12:00:00Z
...
```

5.1.1.3. Request signatures

You must sign all API requests to ensure security. Alibaba Cloud uses the request signature to verify the identity of the API caller. Each API request must contain the signature, regardless of whether the request is sent over HTTP or HTTPS.

Overview

You must add the signature to the ROS API request in the following format:

```
https://Endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=CT9X0VtwR86fNWSnsc6v8YGOjuE%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
```

A signature contains the following parameters:

- SignatureMethod: the encryption method of the signature string. Set the value to HMAC-SHA1.
- SignatureVersion: the version of the signature encryption algorithm. Set the value to 1.0.
- SignatureNonce: a unique, random number used to prevent replay attacks. You must use different random numbers for different requests. We recommend that you use universally unique identifiers (UUIDs).
- Signature: the signature generated after the request has been symmetrically encrypted by using the AccessKey secret.

The signature encryption algorithm complies with RFC 2104 HMAC-SHA1 specifications. The AccessKey secret is used to calculate the hash-based message authentication code (HMAC) value of the encoded and sorted query string, and the HMAC value is used as the signature string. Request signatures include operation-specific parameters. Therefore, the signature of a request varies based on the request parameters. To calculate a signature, follow the steps in this topic.

```
Signature = Base64( HMAC-SHA1( AccessKey Secret, UTF-8-Encoding-Of(StringToSign)) )
```

Step 1: Compose and encode a string-to-sign

1. Create a canonicalized query string by using the request parameters.
    i. Create a canonicalized query string by arranging the request parameters (including all common and operation-specific parameters except Signature) in alphabetical order.

    > **Note** If you use the GET method to submit the request, these parameters are the part located after the question mark (?) and connected by the ampersands (&) in the request uniform resource identifier (URI).

ii. Encode the names and values of the arranged request parameters in the request URL by using the unicode transformation format (UTF)-8 character set. The following table describes the encoding rules.

Character	Encoding rule
Uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), periods (.), and tildes (~)	These characters do not need to be encoded.
Other characters	These characters must be percent encoded in `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as `%22`.
Extended ASCII characters (UTF-8)	These characters are encoded in `%XY%ZA...` format.

Spaces	Spaces must be encoded as `%20`. Do not encode spaces as plus signs (+).
	This encoding method is different from the `application/x-www-form-urlencoded` MIME encoding algorithm (such as the `java.net.URLEncoder` class provided by the Java standard library). However, you can apply the encoding algorithm and replace the plus sign (+) in the encoded string with `%20`, the asterisk (*) with `%2A`, and the tilde (~) with `%7E`. You can use the following `percentEncode` method to implement this algorithm:
	`private static final String ENCODING = "UTF-8";`
	`private static String percentEncode(String value)`
	`throws UnsupportedEncodingException`
	`{`
	`return value ! = null ? URLEncoder.encode(value,`
	`ENCODING).replace("+", "%20").replace("*",`
	`"%2A").replace("%7E", "~") : null;`
	`}`

iii. Connect the encoded parameter names and their values by using equal signs (=).

iv. Sort the connected parameter name and value pairs in the order specified in step i and connect the pairs by using ampersands (&) to obtain the canonicalized query string.

2. Create a string-to-sign from the encoded canonicalized query string in the following way:

```
StringToSign=
      HTTPMethod + "&" +
      percentEncode("/") + "&" +
       percentEncode(CanonicalizedQueryString)
```

A string-to-sign contains the following parameters:

- HTTPMethod: the HTTP method used to submit a request, such as GET.

- percentEncode("/"): specifies the encoded value (%2F) of a forward slash (/). The encoding follows the URL encoding rules.
- percentEncode(CanonicalizedQueryString): specifies the encoded canonicalized query string based on the URL encoding rules.

Step 2: Calculate the signature string

1. Calculate the HMAC value of the string-to-sign based on RFC 2104.

   > **Note** Use the SHA1 algorithm to calculate the HMAC value of the string-to-sign. The combination of your AccessKey secret and an ampersand (&) (ASCII code 38) that follows the secret is used as the key for the HMAC calculation.

2. Encode the HMAC value in Base64 to obtain the signature string.
3. Add the signature string to the request as the Signature parameter.

   > **Note** When the obtained signature value is submitted as the final request parameter value, the value must be URL-encoded that is similar to other parameters based on rules defined in RFC 3986.

Example

The `DescribeRegions` operation is used in this example. This example shows the signature process when `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret:

1. Create a canonicalized query string.

   ```
   http://ros.aliyuncs.com/?Timestamp=2019-08-23T12%3A46%3A24Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-SHA1&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&Version=2019-09-10&SignatureVersion=1.0
   ```

2. Create a string-to-sign.

   ```
   GET&%2F&AccessKeyId%3Dtestid%26Action%3DDescribeRegions%26Format%3DXML%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf%26SignatureVersion%3D1.0%26Timestamp%3D2019-08-23T12%253A46%253A24Z%26Version%3D2019-09-10
   ```

3. Calculate the signature. Because `AccessKeySecret` is set to testsecret, the key value used for calculation is `testsecret&`. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=`. The Java Base64 encoding method is used in this example.

   ```
   Signature = Base64( HMAC-SHA1( AccessSecret, UTF-8-Encoding-Of(StringToSign) ) )
   ```

4. Add the `Signature=OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D` string that has been encoded based on RFC 3986 to the URL in Step 1.

   ```
   http://ros.aliyuncs.com/?SignatureVersion=1.0&Action=DescribeRegions&Format=XML&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&Version=2019-09-10&AccessKeyId=testid&Signature=OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D&SignatureMethod=HMAC-SHA1&Timestamp=2019-08-23T12%253A46%253A24Z
   ```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request by using the new URL. The HTTP request calls the `DescribeRegions` operation to query the Alibaba Cloud region list.

5.1.1.4. Common parameters

This topic describes the common request and response parameters.

Common request parameters

Parameter	Type	Required	Description
Format	String	No	The format in which to return the response. Default value: JSON. Valid values: • JSON • XML
Version	String	Yes	The API version of the service. Specify the version number in the YYYY-MM-DD format. Set the value to 2019-09-10.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. The AccessKey ID is provided by Alibaba Cloud for authentication.
Signature	String	Yes	The signature string of the request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format. The time must be in UTC. Example: 2020-01-10T12:00:00Z.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to 1.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=XXXXXX
&Format=xml
&Version=2019-09-10
&Signature=Pc5WB8gokVn0xfeu%2FZV%2BiNM1dgI%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=1521552885****
&SignatureVersion=1.0
&AccessKeyId=LTAI4GK3D6YtNkNZfjDV****
&TimeStamp=2020-05-01T12:00:00Z
```

Common response parameters

Responses can be returned in the JSON or XML format. You can specify the response format in the request. The default response format is JSON. Every response returns a unique RequestId value regardless of whether the call is successful.

- A `2xx` HTTP status code indicates a successful call.
- A `4xx` or `5xx` HTTP status code indicates a failed call.

Sample responses

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
    <!—Result Root Node-->
    <Interface Name+Response>
        <!—Return Request Tag-->
        <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
        <!—Return Result Data-->
    </Interface Name+Response>
```

- JSON format

```
{
    "RequestId":"4C467B38-3910-447D-87BC-AC049166F216"
    /*Return Result Data*/
}
```

5.1.1.5. RAM authorization

Before you use a RAM user account to call an Alibaba Cloud API, you must use an Alibaba Cloud account to create an authorization policy to assign permissions to the RAM user account.

Resource authorization

By default, a RAM user account is not authorized to call Alibaba Cloud APIs to create or modify cloud resources. Before you use a RAM user to call an API, you must grant the RAM user account the permission to call the API by creating an authorization policy and attaching the policy to the RAM user account.

When you create the authorization policy, you can specify the resource to authorize by its Alibaba Resource Name (ARN). An ARN is used to identify the resource to authorize. ARNs are in the following format:

```
acs:service-name:region:account-id:resource-relative-id
```

An ARN contains the following parameters:

- acs: the abbreviation for Alibaba Cloud Service.
- service-name: the name of an Alibaba Cloud service, such as ECS, OSS, and ROS.
- region: the region where the service resides. If this option is not supported, use the asterisk (`*`) instead.
- account-id: the ID of the user account, such as 123456789012****.
- resource-relative-id: the specific description of a resource. The description varies based on service. For more information, see the documentation of each service.

  For example, `acs:oss:123456789012****:sample_bucket/file1.txt` indicates a resource named *sample_bucket/file1.txt* in Object Storage Service (OSS) and `123456789012****` indicates the ID of the user to which the resource belongs.

Types of ROS resources that can be authorized

Resource type	ARN format in the authorization policy
Stack	acs:ros:$regionid:$accountid:stack/$stackid
	acs:ros:$regionid:$accountid:stack/*
Template	acs:ros:$regionid:$accountid:template/$templateid
	acs:ros:$regionid:$accountid:template/*
StackGroup	acs:ros:$regionid:$accountid:stack_group/*

ROS API operations that can be authorized

The following table lists ROS API operations that can be authorized and their corresponding ARN formats.

Operation	ARN
CreateStack	acs:ros:$regionid:$accountid:stack/*
UpdateStack	acs:ros:$regionid:$accountid:stack/$stackid
DeleteStack	acs:ros:$regionid:$accountid:stack/$stackid
GetStack	acs:ros:$regionid:$accountid:stack/$stackid
ListStacks	acs:ros:$regionid:$accountid:stack/*
PreviewStack	acs:ros:$regionid:$accountid:stack/*
GetTemplateEstimateCost	acs:ros:$regionid:$accountid:*
CancelUpdateStack	acs:ros:$regionid:$accountid:stack/$stackid
ContinueCreateStack	acs:ros:$regionid:$accountid:stack/$stackid
SetStackPolicy	acs:ros:$regionid:$accountid:stack/$stackid
GetStackPolicy	acs:ros:$regionid:$accountid:stack/$stackid
GetTemplate	acs:ros:$regionid:$accountid:stack/$stackid
	acs:ros:$regionid:$accountid:template/$templateid
CreateChangeSet	When ChangeSetType is set to CREATE: acs:ros:$regionid:$accountid:stack/*
	When ChangeSetType is set to UPDATE: acs:ros:$regionid:$accountid:stack/$stackid
GetChangeSet	acs:ros:$regionid:$accountid:stack/$stackid
ListChangeSets	acs:ros:$regionid:$accountid:stack/$stackid
ExecuteChangeSet	acs:ros:$regionid:$accountid:stack/$stackid
DeleteChangeSet	acs:ros:$regionid:$accountid:stack/$stackid
ListStackEvents	acs:ros:$regionid:$accountid:stack/$stackid
ListStackResources	acs:ros:$regionid:$accountid:stack/$stackid
GetStackResource	acs:ros:$regionid:$accountid:stack/$stackid
SignalResource	acs:ros:$regionid:$accountid:stack/$stackid
DetectStackDrift	acs:ros:$regionid:$accountid:stack/$stackid
DetectStackResourceDrift	acs:ros:$regionid:$accountid:stack/$stackid

Operation	ARN
GetStackDriftDetectionStatus	acs:ros:$regionid:$accountid:stack/$stackid
ListStackResourceDrifts	acs:ros:$regionid:$accountid:stack/$stackid
DetectStackGroupDrift	acs:ros:$regionid:$accountid:stack_group/*
UpdateStackTemplateByResources	acs:ros:$regionid:$accountid:stack/$stackid

5.1.1.6. Common error codes

This topic describes the common client and server error codes.

Client error codes

Error code	Error message	HTTP status code	Description
UnknownError	The request processing has failed due to some unknown error.	400	The error message returned because an unknown error that is not caused by a server-side issue has occurred on the client.
MissingParameter	The input parameter {name} should be specified.	400	The error message returned because the input parameter is missing. name indicates the parameter name.
	One of the input parameters {names} should be specified.	400	The error message returned because the input parameter is missing. You must specify one of the input parameters. names indicates the names of all the related parameters.
	The input parameter {name} should be specified, {reason}.	400	The error message returned because the input parameter is missing. name indicates the parameter name, and reason indicates the specific reason.
	The specified parameter {name} is invalid.	400	The error message returned because the specified parameter is invalid. name indicates the parameter name.

Error code	Error message	HTTP status code	Description
InvalidParameter	The specified parameter {name} is invalid, {reason}.	400	The error message returned because the specified parameter is invalid. name indicates the parameter name, and reason indicates the specific reason.
MultipleParameter	Only one of the input parameters {names} can be specified.	400	The error message returned because the number of specified parameters exceeds the limit. You can specify only one of the parameters. names indicates the names of all the related parameters.
InvalidIdempotenceParameter	The specified parameters are different from before.	400	The error message returned because the idempotent token is the same, but the specified parameters are different from before.
LastTokenProcessing	The last token request is processing.	400	The error message returned because the previous token request is being processed. Try again later.
Invalid	Data supplied was not valid: {reason}.	400	The error message returned because the value is invalid. reason indicates the specific reason.
InvalidValue	{reason}.	400	The error message returned because the value is invalid. reason indicates the specific reason.
RequestLimitExceeded	Request limit exceeded: {reason}.	400	The error message returned because the request contains content that exceeds the limit. reason indicates the specific reason. You can change the part of content that exceeds the limit by adjusting the quota.
NotSupported	{feature} is not supported.	400	The error message returned because a specified feature is not supported. feature indicates the specific feature or operation.

Error code	Error message	HTTP status code	Description
MismatchNextToken	{name} mismatches next token.	400	The error message returned because the specified parameter does not match the next token. name indicates the parameter name.
AssumeRoleFailure	Fail to assume role {name}: {reason}	400	The error message returned because ROS has failed to obtain a temporary identity to assume the specified RAM role. name indicates the RAM role name, and reason indicates the specific reason for the failure.
Forbidden	You are not authorized to complete this action.	403	The error message returned because you are not authorized to complete this action.
	A required authorization for the specified action {api} is not supplied. Code: {code} RequestId: {request_id}	403	The error message returned because you have not authorized ROS to call the operation. api indicates the name of the operation. code indicates the error code. request_id indicates the ID of the request.
AccountTypeNotSupported	Account type not supported.	403	The error message returned because the specified account type is not supported.
NotFound	{reason}.	404	The error message returned because the request contains content that does not exist. reason indicates the specific reason.

Server error codes

Error code	Error message	HTTP status code	Description
InternalError	Server error.	500	The error message returned because an internal error has occurred.

Error code	Error message	HTTP status code	Description
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503	The error message returned because a server error has occurred. Try again later. If the problem persists, submit a ticket.

5.1.1.7. Stack operations

5.1.1.7.1. CreateStack

You can call this operation to create a stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateStack	The operation that you want to perform. Set the value to CreateStack.
Parameters.N.ParameterKey	String	Yes	InstanceId	The key of parameter N. If the key and value of the parameter are not specified, the key and value in the template are used. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.

Parameter	Type	Required	Example	Description
Parameters.N.ParameterValue	String	Yes	i-xxxxxx	The value of parameter N. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackName	String	Yes	MyStack	The name of the stack. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.
DisableRollback	Boolean	No	false	Specifies whether to disable rollback on stack creation failure. Default value: false. Valid values: • true: disables rollback on stack creation failure. • false: enables rollback on stack creation failure.

Parameter	Type	Required	Example	Description
TemplateBody	String	No	{ "ROSTemplateFormatVersion": "2015-09-01" }	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
StackPolicyURL	String	No	oss://ros-stack-policy/demo	The URL of the file that contains the stack policy. The URL must point to a policy located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/stack-policy/demo and oss://ros/stack-policy/demo?RegionId=cn-hangzhou. The policy can be up to 16,384 bytes in length and the URL can be up to 1,350 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.
TimeoutInMinutes	Long	No	10	The timeout period that is specified for the stack creation request. • Default value: 60. • Unit: minutes.

Parameter	Type	Required	Example	Description
StackPolicyBody	String	No	{"Statement": [{"Action": "Update:*", "Resource": "*", "Effect": "Allow", "Principal": "*"}]}	The structure that contains the stack policy body. The stack policy body must be 1 to 16,384 bytes in length. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).
TemplateURL	String	No	oss://ros-template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template must be 1 to 524,288 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Parameter	Type	Required	Example	Description
NotificationURLs.N	RepeatList	No	http://my-site.com/ros-event	The callback URL for receiving stack event N. Only HTTP POST is supported. • Maximum value of N: 5. • Each URL can be up to 1,024 bytes in length. ROS sends a notification to the specified URL when the stack state changes. If rollback is enabled on the stack, notifications are sent if the stack is in the CREATE_ROLLBACK or ROLLBACK state, but are not sent when the stack is in the CREATE_FAILED or UPDATE_FAILED state. **Note** ROS does not send notifications when the stack is in the IN_PROGRESS state. Notifications are sent regardless of whether the Outputs parameter is specified. The following code is an example of a notification: `{ "Outputs": [ { "Description": "No description given", "OutputKey": "InstanceId", "OutputValue": "i-xxx" } ], "StackId": "80bd6b6c-e888-4573-ae3b-93d29113****", "StackName": "test-notification-url", "Status": "CREATE_COMPLETE" }`

Parameter	Type	Required	Example	Description
RamRoleName	String	No	test-role	The name of the RAM role. ROS assumes the specified RAM role to create the stack and call API operations by using the credentials of the role. All operations are performed under this role. If a RAM user is authorized to perform operations on the stack but does not have the permission to use the role, ROS still uses the role and grants the role the least privilege. If you do not specify this parameter, ROS uses the role previously associated with the stack. If no roles are available, ROS uses the temporary credentials generated from the credentials of your account. The RAM role name can be up to 64 characters in length.
DeletionProtection	String	No	Enabled	Specifies whether to enable deletion protection on the stack. Default value: Disabled. Valid values: • Enabled: enables deletion protection on the stack. • Disabled: disables deletion protection on the stack. You can release the stack by using the ROS console or by calling the DeleteStack operation. **Note** The deletion protection property of a nested stack is the same as that of its root stack.

Parameter	Type	Required	Example	Description
CreateOption	String	No	KeepStackOnCreationComplete	Specifies whether to delete the stack after it is created. Default value: KeepStackOnCreationComplete. Valid values: • KeepStackOnCreationComplete: retains the stack and all its resources after the stack is created. • AbandonStackOnCreationComplete: deletes the stack but retains all its resources after the stack is created. This helps you ensure that the maximum number of stacks allowed to be created is not reached. If the stack fails to be created, the stack is retained.

Response parameters

Parameter	Type	Example	Description
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=CreateStack
&RegionId=cn-hangzhou
&StackName=MyStack
&Parameters.1.ParameterKey=InstanceId
&Parameters.1.ParameterValue=i-xxxxxx
&TimeoutInMinutes=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateStackResponse>
          <StackId>4a6c9851-3b0f-4f5f-b4ca-a14bf691****</StackId>
          <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</CreateStackResponse>
```

`JSON` format

```
{
    "StackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf691****",
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

Error code	Error message	HTTP status code	Description
CircularDependency	Circular Dependency Found: {reason}.	400	The error message returned because the template contains a circular reference. reason indicates the specific reason.
InvalidSchema	{reason}.	400	The error message returned because the specified template format is incorrect. reason indicates the specific reason.
InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	400	The error message returned because the resource attribute referenced in the template is incorrect. resource indicates the resource name, and name indicates the attribute name.
InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	400	The error message returned because the type of the specified resource section defined in the template is invalid. resource indicates the resource name, and section indicates the section name.

Error code	Error message	HTTP status code	Description
InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	400	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
InvalidTemplateSection	The template section is invalid: {section}.	400	The error message returned because the template contains an invalid section. section indicates the section name.
InvalidTemplateVersion	The template version is invalid: {reason}.	400	The error message returned because the template version is incorrect. reason indicates the specific reason.
StackValidationFailed	{reason}.	400	The error message returned because the stack validation failed. reason indicates the specific reason.
UnknownUserParameter	The Parameter ({name}) was not defined in template.	400	The error message returned because the specified parameter is not defined in the template. name indicates the parameter key.
UserParameterMissing	The Parameter {name} was not provided.	400	The error message returned because no value is passed into the specified parameter defined in the template. name indicates the parameter key.

Error code	Error message	HTTP status code	Description
ActionInProgress	Stack {name} already has an action ({action}) in progress.	409	The error message returned because the specified stack has a change operation in progress. name indicates the name or ID of the stack, and action indicates the change operation.
StackExists	The Stack ({name}) already exists.	409	The error message returned because a stack with the same name already exists. name indicates the stack name.

5.1.1.7.2. ContinueCreateStack

Creates a stack based on the template of the previous stack that fails to be created.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ContinueCreateStack	The operation that you want to perform. Set the value to ContinueCreateStack.
Parameters.N.ParameterKey	String	Yes	Amount	The key of template parameter N to be overridden. If the key and value of the parameter are not specified, the key and value are set to those in the template of the stack that fails to be created. Maximum value of N: 200. **Note** This parameter takes effect only when the Mode parameter is set to Recreate.

Parameter	Type	Required	Example	Description
Parameters.N.ParameterValue	String	Yes	12	The value of template parameter N to be overridden. Maximum value of N: 200. This parameter takes effect only when the Mode parameter is set to Recreate. Take note of the following limits on the template parameter to be overridden: • This parameter cannot change values in the Conditions section of the template from true to false or from false to true. • This parameter can be referenced only by resources that are recreated.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
RecreatingResources.N	RepeatList	No	WebServer	The resource N to be recreated upon creation failure. ROS recreates the resources you list in this parameter and all resources that depend on the resources.
RamRoleName	String	No	test-role	The name of the Resource Access Management (RAM) role. Resource Orchestration Service (ROS) assumes the specified RAM role to create the stack and call API operations by using the credentials of the role. All operations are performed under this role. If a RAM user is authorized to perform operations on the stack but does not have the permissions to use the role, ROS still uses the role and grants the role the least privilege. If you do not specify this parameter, ROS uses the role previously associated with the stack. If no roles are available, ROS uses the temporary credentials generated from the credentials of your account. The RAM role name can be up to 64 characters in length.

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description

Mode	String	No	Recreate	The stack recreation mode. Default value: Recreate. Valid values:
				• Recreate
				  ◦ Only the following types of resources are recreated:
				  ▪ Resources that fail to be created
				  ▪ Resources specified in the RecreatingResources.N parameter
				  ▪ Resources that depend on the resources specified in the RecreatingResources.N parameter
				  ▪ Resources for which creation operations are not initiated
				  ◦ The RecreatingResources.N, TemplateBody, TemplateURL, and Parameters parameters take effect only when the Mode parameter is set to Recreate.
				• Ignore:
				  ◦ ROS ignores and discards all resources that fail to be recreated and the resources for which creation operations are not initiated. Then, the stack creation operation is marked as successful.
				  ◦ Content of the template is changed.

Parameter	Type	Required	Example	Description

TemplateBody	String	No	{ "ROSTemplateFormatVersion": "2015-09-01" }	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length.
				If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs.
				Note You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
				This parameter takes effect only when the Mode parameter is set to Recreate. Take note of the following limits on the template:
				• Only the Description, Metadata, Resources, and Outputs sections in the template can be modified.
				• No sections can be added to or removed from the outermost layer of the template.
				• Take note of the following limits on the Resources section of the template:
				  ◦ The resources not to be recreated cannot be deleted, and their template content cannot be modified.
				  ◦ The resources to be recreated can be deleted, and their template content can be modified.
				  ◦ New resources can be added.

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros-template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Object Storage Service (OSS) bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou.The template can be up to 524,288 bytes in length. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them. This parameter takes effect only when the Mode parameter is set to Recreate. For information about the limits on the template specified in this parameter, see the description of the TemplateBody parameter.
DryRun	Boolean	No	false	Specifies whether to check the validity of the request without actually making the request. Default value: false. Valid values: • true: checks the validity of the request without actually making the request. • false: makes the request to recreate the stack.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/?Action=ContinueCreateStack
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ContinueCreateStackResponse>
       <RequestId type="string">B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
       <StackId type="string">0a7c379a-566f-4bc0-b3fb-a301df51****</StackId>
</ContinueCreateStackResponse>
```

`JSON` format

```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
   "StackId": "0a7c379a-566f-4bc0-b3fb-a301df51****"
}
```

HTTP status code	Error code	Error message	Description
400	CircularDependency	Circular Dependency Found: {reason}.	The error message returned because the template contains a circular reference. reason indicates the specific reason.
400	InvalidSchema	{reason}.	The error message returned because the specified template format is invalid. reason indicates the specific reason.
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is invalid. resource indicates the resource name, and name indicates the attribute name.

HTTP status code	Error code	Error message	Description
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is invalid. resource indicates the resource name, and section indicates the section name.
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid section. section indicates the section name.
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is invalid. reason indicates the specific reason.

HTTP status code	Error code	Error message	Description
400	StackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
400	UnknownUserParameter	The Parameter ({name}) was not defined in template.	The error message returned because the specified parameter is not defined in the template. name indicates the parameter key.
400	UserParameterMissing	The Parameter {name} was not provided.	The error message returned because no value is passed into the specified parameter defined in the template. name indicates the parameter key.
400	ContinueCreateStackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
404	ResourceNotFound	The Resource ({name}) could not be found in Stack {stack}.	The error message returned because the specified resource does not exist in the specified stack. name indicates the resource name, and stack indicates the stack name or ID.

HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the stack does not exist. name indicates the name or ID of the stack.
409	ActionInProgress	Stack {name} already has an action ({action}) in progress.	The error message returned because the specified stack has a change operation in progress. name indicates the name or ID of the stack, and action indicates the change operation.

5.1.1.7.3. UpdateStack

You can call this operation to update a stack.

The values of Parameters and UsePreviousParameters in the request are related. If parameters defined in the template are not specified by Parameters, take note of the following items:

- When UsePreviousParameters is set to false, if the parameter has a default value in the template, the default value is used. If the parameter does not have a default value in the template, you must specify the parameter in the Parameters section.
- When UsePreviousParameters is set to true, if the parameter is specified when the stack is created, the specified value is used. If the parameter is not specified and it has a default value in the template, the default value is used.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateStack	The operation that you want to perform. Set the value to UpdateStack.

Parameter	Type	Required	Example	Description
Parameters.N.ParameterKey	String	Yes	Amount	The key of parameter N. If the key and value of the parameter are not specified, the key and value in the template are used. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
Parameters.N.ParameterValue	String	Yes	12	The value of parameter N. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
RegionId	String	Yes	cn-beijing	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).
StackPolicyDuringUpdateBody	String	No	{"Statement": [{"Effect": "Allow", "Action": "Update:*", "Principal": "*", "Resource": "*"}]}	The structure that contains the body of the temporary overriding stack policy. The stack policy body must be 1 to 16,384 bytes in length. To update protected resources, specify a temporary overriding stack policy during the update. If you do not specify a stack policy, the current policy that is associated with the stack is used. This parameter takes effect only when the ChangeSetType parameter is set to UPDATE. You can specify only one of the following parameters: • StackPolicyBody • StackPolicyURL • StackPolicyDuringUpdateBody • StackPolicyDuringUpdateURL
TimeoutInMinutes	Long	No	10	The timeout period that is specified for the stack update request. • Default value: 60. • Unit: minutes.

Parameter	Type	Required	Example	Description
TemplateBody	String	No	{"ROSTemplateFormatVersion": "2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
StackPolicyURL	String	No	oss://ros-stack-policy/demo	The URL of the file that contains the stack policy. The URL must point to a policy located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/stack-policy/demo and oss://ros/stack-policy/demo?RegionId=cn-hangzhou. The policy can be up to 16,384 bytes in length and the URL can be up to 1,350 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.

Parameter	Type	Required	Example	Description
StackPolicyDuringUpdateURL	String	No	oss://ros-stack-policy/demo	The URL of the file that contains the temporary overriding stack policy. The URL must point to a policy located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/stack-policy/demo and oss://ros/stack-policy/demo?RegionId=cn-hangzhou. The policy can be up to 16,384 bytes in length and the URL can be up to 1,350 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them. To update protected resources, specify a temporary overriding stack policy during the update. If you do not specify a stack policy, the current policy that is associated with the stack is used. This parameter takes effect only when the ChangeSetType parameter is set to UPDATE. You can specify only one of the following parameters: • StackPolicyBody • StackPolicyURL • StackPolicyDuringUpdateBody • StackPolicyDuringUpdateURL
StackPolicyBody	String	No	{"Statement": [{"Action": "Update:*", "Resource": "*", "Effect": "Allow", "Principal": "*"}]}	The structure that contains the stack policy body. The stack policy body must be 1 to 16,384 bytes in length. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.

Parameter	Type	Required	Example	Description
UsePreviousParameters	Boolean	No	true	Specifies whether to use the values that were passed last time for the parameters that you do not specify in the current request. Valid values: • true • false
DisableRollback	Boolean	No	false	This parameter cannot take effect when the stack is being updated. If the update fails, a rollback is performed regardless of the value of this parameter.
TemplateURL	String	No	oss://ros-template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template must be 1 to 524,288 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Parameter	Type	Required	Example	Description
RamRoleName	String	No	test-role	The name of the RAM role. ROS assumes the specified RAM role to create the stack and call API operations by using the credentials of the role. All operations are performed under this role. If a RAM user is authorized to perform operations on the stack but does not have the permission to use the role, ROS still uses the role and grants the role the least privilege. If you do not specify this parameter, ROS uses the role previously associated with the stack. If no roles are available, ROS uses the temporary credentials generated from the credentials of your account. The RAM role name can be up to 64 characters in length.
ReplacementOption	String	No	Disabled	Specifies whether to enable replacement update after a resource attribute that does not support modification update is changed. Modification update keeps the physical ID of the resource unchanged. However, the resource is deleted and then recreated, and its physical ID is changed if replacement update is enabled. Default value: Disabled. Valid values: • Enable: enables replacement update. • Disabled: disables replacement update. Note Modification update takes precedence over replacement update.

Response parameters

Parameter	Type	Example	Description
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=UpdateStack
&RegionId=cn-beijing
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&Parameters.1.ParameterKey=Amount
&Parameters.1.ParameterValue=12
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpdateStackResponse>
      <StackId>4a6c9851-3b0f-4f5f-b4ca-a14bf691****</StackId>
      <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</UpdateStackResponse>
```

`JSON` format

```
{
    "StackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf691****",
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

HTTP status code	Error code	Error message	Description
400	CircularDependency	Circular Dependency Found: {reason}.	The error message returned because the template contains a circular dependency. reason indicates the specific reason.

HTTP status code	Error code	Error message	Description
400	InvalidSchema	{reason}.	The error message returned because the specified template format is incorrect. reason indicates the specific reason.
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is incorrect. resource indicates the resource name, and name indicates the attribute name.
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is incorrect. resource indicates the resource name, and section indicates the section name.
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid section. section indicates the section name.

HTTP status code	Error code	Error message	Description
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is incorrect. reason indicates the specific reason.
400	StackPolicyValidationFailed	Action denied by stack policy: {reason}.	The error message returned because the stack policy validation failed. reason indicates the specific reason.
400	StackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
400	UnknownUserParameter	The Parameter ({name}) was not defined in template.	The error message returned because the specified parameter is not defined in the template. name indicates the parameter key.
400	UserParameterMissing	The Parameter {name} was not provided.	The error message returned because no value is passed into the specified parameter defined in the template. name indicates the parameter key.
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

HTTP status code	Error code	Error message	Description
409	ActionInProgress	Stack {name} already has an action ({action}) in progress.	The error message returned because the specified stack has a change operation in progress. name indicates the name or ID of the stack, and action indicates the change operation.

5.1.1.7.4. CancelUpdateStack

Cancels the update of a stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CancelUpdateStack	The operation that you want to perform. Set the value to CancelUpdateStack.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
CancelType	String	No	Safe	The method to cancel the update operation. Valid values: • Quick: cancels the update of a stack as soon as possible. • Safe: cancels the update of a stack as safely as possible.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/?Action=CancelUpdateStack
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CancelUpdateStackResponse>
         <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
         <StackId>4a6c9851-3b0f-4f5f-b4ca-a14bf691****</StackId>
</CancelUpdateStackResponse>
```

`JSON` format

```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
   "StackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf691****"
}
```

HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the stack does not exist. name indicates the name or ID of the stack.
409	ActionInProgress	Stack {name} already has an action ({action}) in progress.	The error message returned because the specified stack has a change operation in progress. name indicates the name or ID of the stack, and action indicates the change operation.

5.1.1.7.5. GetStack

You can call this operation to query information about a stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetStack	The operation that you want to perform. Set the value to GetStack.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).

Response parameters

Parameter	Type	Example	Description
CreateTime	String	2019-08-01T04:07:39	The time when the stack was created. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
Description	String	my stack description	The description of the stack.
DisableRollback	Boolean	false	Indicates whether rollback is disabled on stack creation failure. Default value: false. Valid values: • true: The rollback on stack creation failure is disabled. • false: The rollback on stack creation failure is enabled.
NotificationURLs	List	["http://127.XX.XX.1:8080/x", "http://127.0.XX.XX:8080/y"]	The callback URLs for receiving stack events.

Parameter	Type	Example	Description
Outputs	List	[{"Description": "Instance ID","OutputKey": "InstanceId","OutputValue": "i-a****"}]	The output parameters of the stack.
Parameters	Array of Parameter		The list of input parameters of the stack.
ParameterKey	String	InstanceType	The key of the parameter.
ParameterValue	String	ecs.cm4.6xlarge	The value of the parameter.
ParentStackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf692****	The ID of the parent stack.
RegionId	String	cn-beijing	The region ID of the stack.

Parameter	Type	Example	Description
Status	String	CREATE_COMPLETE	The state of the stack. Valid values: • CREATE_IN_PROGRESS • CREATE_FAILED • CREATE_COMPLETE • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • DELETE_IN_PROGRESS • DELETE_FAILED • DELETE_COMPLETE • CREATE_ROLLBACK_IN_PROGRESS • CREATE_ROLLBACK_FAILED • CREATE_ROLLBACK_COMPLETE • ROLLBACK_IN_PROGRESS • ROLLBACK_FAILED • ROLLBACK_COMPLETE • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • REVIEW_IN_PROGRESS • IMPORT_CREATE_IN_PROGRESS • IMPORT_CREATE_FAILED • IMPORT_CREATE_COMPLETE • IMPORT_CREATE_ROLLBACK_IN_PROGRESS • IMPORT_CREATE_ROLLBACK_FAILED • IMPORT_CREATE_ROLLBACK_COMPLETE • IMPORT_UPDATE_IN_PROGRESS • IMPORT_UPDATE_FAILED • IMPORT_UPDATE_COMPLETE • IMPORT_UPDATE_ROLLBACK_IN_PROGRESS • IMPORT_UPDATE_ROLLBACK_FAILED • IMPORT_UPDATE_ROLLBACK_COMPLETE
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Example	Description
StackName	String	MyStack	The name of the stack. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.
UpdateTime	String	2019-08-01T04:07:39	The time when the stack was last updated. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
StatusReason	String	Stack successfully created	The reason why the stack is in its current state.
TemplateDescription	String	Some description	The description of the stack.
TimeoutInMinutes	Integer	10	The timeout period that is specified for the stack creation request. Unit: minutes.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.
DeletionProtection	String	Enabled	Indicates whether deletion protection is enabled on the stack. Valid values: • Enabled: Deletion protection is enabled on the stack. • Disabled: Deletion protection is disabled on the stack. You can release the stack by using the ROS console or by calling the DeleteStack operation. **Note** The deletion protection property of a nested stack is the same as that of its root stack.

Parameter	Type	Example	Description
DriftDetectionTime	String	2020-02-27T07:47:47	The time when the last successful drift detection operation was initiated.
RamRoleName	String	test-role	The name of the RAM role. ROS assumes the specified RAM role to create the stack and call API operations by using the credentials of the role. All operations are performed under this role. If a RAM user is authorized to perform operations on the stack but does not have the permission to use the role, ROS still uses the role and grants the role the least privilege. If you do not specify this parameter, ROS uses the role previously associated with the stack. If no roles are available, ROS uses the temporary credentials generated from the credentials of your account. The RAM role name can be up to 64 characters in length.
RootStackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf692****	The ID of the root stack. This parameter is returned if the specified stack is a nested stack.
StackDriftStatus	String	IN_SYNC	The drift state of the stack in the last successful drift detection. Valid values: • DRIFTED: The stack has drifted. • NOT_CHECKED: No drift detection has been successful on the stack group. • IN_SYNC: The stack is being synchronized.
StackType	String	ROS	The type of the stack. Valid values: • ROS: The stack was created based on an ROS template. • Terraform: The stack was created based on a Terraform template.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetStack
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetStackResponse>
          <CreationTime>2019-08-01T04:07:39</CreationTime>
          <Description>No description</Description>
          <DisableRollback>false</DisableRollback>
          <NotificationURLs>http://127.0.XX.XX:8080/x</NotificationURLs>
          <NotificationURLs>http://127.0.XX.XX:8080/y</NotificationURLs>
          <Outputs>
                <Description>Instance ID</Description>
                <OutputKey>InstanceId</OutputKey>
                <OutputValue>i-a****</OutputValue>
          </Outputs>
          <Parameters>
                <ParameterKey>InstanceType</ParameterKey>
                <ParameterValue>ecs.cm4.6xlarge</ParameterValue>
          </Parameters>
          <RegionId>cn-hangzhou</RegionId>
          <StackId>4a6c9851-3b0f-4f5f-b4ca-a14bf691****</StackId>
          <StackName>MyStack</StackName>
          <Status>CREATE_COMPLETE</Status>
          <StatusReason>Stack successfully created</StatusReason>
          <TemplateDescription>Some description</TemplateDescription>
          <TimeoutInMinutes>10</TimeoutInMinutes>
          <UpdatedTime>2019-08-01T04:07:39</UpdatedTime>
          <ParentStackId>4a6c9851-3b0f-4f5f-b4ca-a14bf692****</ParentStackId>
          <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
          <StackDriftStatus>IN_SYNC</StackDriftStatus>
          <RamRoleName>test-role</RamRoleName>
          <DeletionProtection>Enabled</DeletionProtection>
          <RootStackId>4a6c9851-3b0f-4f5f-b4ca-a14bf692****</RootStackId>
          <StackType>ROS</StackType>
          <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</GetStackResponse>
```

`JSON` format

```
{
    "CreationTime": "2019-08-01T04:07:39",
    "Description": "No description",
    "DisableRollback": false,
    "NotificationURLs": [
        "http://127.0.XX.XX:8080/x",
        "http://127.0.XX.XX:8080/y"
    ],
    "Outputs": [
        {
            "Description": "Instance ID",
            "OutputKey": "InstanceId",
            "OutputValue": "i-a****"
        }
    ],
    "Parameters": [
        {
            "ParameterKey": "InstanceType",
            "ParameterValue": "ecs.cm4.6xlarge"
        }
    ],
    "RegionId": "cn-hangzhou",
    "StackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf691****",
    "StackName": "MyStack",
    "Status": "CREATE_COMPLETE",
    "StatusReason": "Stack successfully created",
    "TemplateDescription": "Some description",
    "TimeoutInMinutes": 10,
    "UpdatedTime": "2019-08-01T04:07:39",
    "ParentStackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf692****",
    "DriftDetectionTime": "2020-02-27T07:47:47",
    "StackDriftStatus": "IN_SYNC",
    "RamRoleName": "test-role",
    "DeletionProtection": "Enabled",
    "RootStackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf692****",
    "StackType": "ROS",
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```


HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.7.6. DeleteStack

You can call this operation to delete a stack and all of its resources.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteStack	The operation that you want to perform. Set the value to DeleteStack.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
RetainAllResources	Boolean	No	false	Specifies whether to retain the resources in the stack.
RetainResources.N	RepeatList	No	WebServer	The list of resources to retain.
RamRoleName	String	No	test-role	The name of the RAM role. ROS assumes the specified RAM role to create the stack and call API operations by using the credentials of the role. All operations are performed under this role. If a RAM user is authorized to perform operations on the stack but does not have the permission to use the role, ROS still uses the role and grants the role the least privilege. If you do not specify this parameter, ROS does not use the role previously associated with the stack. If you want to use a role, you must specify it in this parameter. If no roles are available, ROS uses the temporary credentials generated from the credentials of your account. The RAM role name can be up to 64 characters in length.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=DeleteStack
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteStackResponse>
      <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</DeleteStackResponse>
```

`JSON` format

```
{
  "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

HTTP status code	Error code	Error message	Description
400	InvalidOperation.DeletionProtection	Fail to delete stack {ID}, as deletion protection is enabled.	The error message returned because deletion protection prevented the stack from being deleted. ID indicates the stack ID.
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

HTTP status code	Error code	Error message	Description
409	ActionInProgress	Stack {name} already has an action ({action}) in progress.	The error message returned because the specified stack has a change operation in progress. name indicates the name or ID of the stack, and action indicates the change operation.

5.1.1.7.7. ListStacks

Queries the list of stacks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListStacks	The operation that you want to perform. Set the value to ListStacks.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.

Parameter	Type	Required	Example	Description
Status.N	RepeatList	No	CREATE_COMPLETE	The status of stack N. Valid values: • CREATE_IN_PROGRESS • CREATE_FAILED • CREATE_COMPLETE • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • DELETE_IN_PROGRESS • DELETE_FAILED • DELETE_COMPLETE • CREATE_ROLLBACK_IN_PROGRESS • CREATE_ROLLBACK_FAILED • CREATE_ROLLBACK_COMPLETE • ROLLBACK_IN_PROGRESS • ROLLBACK_FAILED • ROLLBACK_COMPLETE • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • REVIEW_IN_PROGRESS • IMPORT_CREATE_IN_PROGRESS • IMPORT_CREATE_FAILED • IMPORT_CREATE_COMPLETE • IMPORT_CREATE_ROLLBACK_IN_PROGRESS • IMPORT_CREATE_ROLLBACK_FAILED • IMPORT_CREATE_ROLLBACK_COMPLETE • IMPORT_UPDATE_IN_PROGRESS • IMPORT_UPDATE_FAILED • IMPORT_UPDATE_COMPLETE • IMPORT_UPDATE_ROLLBACK_IN_PROGRESS • IMPORT_UPDATE_ROLLBACK_FAILED • IMPORT_UPDATE_ROLLBACK_COMPLETE Valid values of N: 1 to 5.

Parameter	Type	Required	Example	Description
PageSize	Long	No	10	The number of entries to return on each page. Maximum value: 50. Default value: 10.
ParentStackId	String	No	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the parent stack.
StackName.N	RepeatList	No	MyStack	The name of stack N. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter. Fuzzy search with an asterisk (*) is supported. Valid values of N: 1 to 5.
PageNumber	Long	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
ShowNestedStack	Boolean	No	true	Specifies whether to display nested stacks. Default value: false. Valid values: • true • false Note This parameter is set to true if the ParentStackId parameter is specified.
Tag.N.Key	String	No	usage	The key of tag N of the stack. Valid values of N: 1 to 20.
Tag.N.Value	String	No	test	The value of tag N of the stack. Valid values of N: 1 to 20.

Parameter	Type	Required	Example	Description
StackId	String	No	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack. If detailed information about the stack is not required, you can use this parameter to replace the GetStack operation.

Response parameters

Parameter	Type	Example	Description
Stacks	Array of Stack		The list of stacks.
CreateTime	String	2019-08-01T04:07:39	The time when the stack was created. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
DisableRollback	Boolean	false	Indicates whether rollback is disabled when the stack fails to be created. Default value: false. Valid values: • true: Rollback is disabled when the stack fails to be created. • false: Rollback is enabled when the stack fails to be created.
DriftDetectionTime	String	2020-02-27T07:47:47	The time when the latest successful drift detection operation was initiated.
ParentStackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf692****	The ID of the parent stack.
RegionId	String	cn-hangzhou	The region ID of the stack.
StackDriftStatus	String	IN_SYNC	The drift status of the stack in the latest successful drift detection. Valid values: • DRIFTED: The stack has drifted. • NOT_CHECKED: No drift detection has been performed on the stack. • IN_SYNC: The stack is being synchronized.
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Example	Description
StackName	String	MyStack	The name of the stack.
StackType	String	ROS	The type of the stack. Set the value to ROS, which indicates that the stack was created based on an ROS template.
Status	String	CREATE_COMPLETE	The status of the stack. Valid values: • CREATE_IN_PROGRESS • CREATE_FAILED • CREATE_COMPLETE • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • DELETE_IN_PROGRESS • DELETE_FAILED • DELETE_COMPLETE • CREATE_ROLLBACK_IN_PROGRESS • CREATE_ROLLBACK_FAILED • CREATE_ROLLBACK_COMPLETE • ROLLBACK_IN_PROGRESS • ROLLBACK_FAILED • ROLLBACK_COMPLETE • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • REVIEW_IN_PROGRESS • IMPORT_CREATE_IN_PROGRESS • IMPORT_CREATE_FAILED • IMPORT_CREATE_COMPLETE • IMPORT_CREATE_ROLLBACK_IN_PROGRESS • IMPORT_CREATE_ROLLBACK_FAILED • IMPORT_CREATE_ROLLBACK_COMPLETE • IMPORT_UPDATE_IN_PROGRESS • IMPORT_UPDATE_FAILED • IMPORT_UPDATE_COMPLETE • IMPORT_UPDATE_ROLLBACK_IN_PROGRESS • IMPORT_UPDATE_ROLLBACK_FAILED • IMPORT_UPDATE_ROLLBACK_COMPLETE

Parameter	Type	Example	Description
StatusReason	String	Stack successfully created	The reason why the stack is in its current state.
TimeoutInMinutes	Integer	10	The timeout period that is specified for the stack creation request. Unit: minutes.
UpdateTime	String	2019-08-01T04:07:39	The time when the stack was last updated. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
PageSize	Integer	10	The number of entries returned per page. Maximum value: 50. Default value: 10.
PageNumber	Integer	1	The page number of the returned page.
TotalCount	Integer	1	The total number of stacks.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/?Action=ListStacks
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListStacksResponse>
    <Stacks>
        <Stack>
            <StackId>4a6c9851-3b0f-4f5f-b4ca-a14bf691****</StackId>
            <ParentStackId>4a6c9851-3b0f-4f5f-b4ca-a14bf692****</ParentStackId>
            <StackName>StackName</StackName>
            <RegionId>cn-hangzhou</RegionId>
            <DisableRollback>false</DisableRollback>
            <CreateTime>2019-08-01T04:07:39</CreationTime>
            <Status>CREATE_COMPLETE</Status>
            <StatusReason>Stack successfully created</StatusReason>
            <TimeoutInMinutes>10</TimeoutInMinutes>
            <UpdatedTime>2019-08-01T04:07:39</UpdatedTime>
            <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
            <StackDriftStatus>IN_SYNC</StackDriftStatus>
            <StackType>ROS</StackType>
        </Stack>
    </Stacks>
    <PageNumber>1</PageNumber>
    <PageSize>10</PageSize>
    <TotalCount>1</TotalCount>
    <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</ListStacksResponse>
```

`JSON` format

```
{
    "Stacks": [
        {
            "StackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf691****",
            "ParentStackId": "4a6c9851-3b0f-4f5f-b4ca-a14bf692****",
            "StackName": "MyStack",
            "RegionId": "cn-hangzhou",
            "DisableRollback": false,
            "CreateTime": "2019-08-01T04:07:39",
            "Status": "CREATE_COMPLETE",
            "StatusReason": "Stack successfully created",
            "TimeoutInMinutes": 10,
            "UpdatedTime": "2019-08-01T04:07:39",
            "DriftDetectionTime": "2020-02-27T07:47:47",
      "StackDriftStatus": "IN_SYNC",
            "StackType": "ROS"
        }
    ],
    "PageNumber": 1,
    "PageSize": 10,
    "TotalCount": 1,
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

5.1.1.7.8. PreviewStack

You can call this operation to preview the stack to be created by using a specified template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PreviewStack	The operation that you want to perform. Set the value to PreviewStack.
Parameters.N.ParameterKey	String	Yes	InstanceType	The key of parameter N. If the key and value of the parameter are not specified, the key and value in the template are used. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
Parameters.N.ParameterValue	String	Yes	ecs.cm4.6xlarge	The value of parameter N. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
RegionId	String	Yes	cn-beijing	The region ID of the stack.

Parameter	Type	Required	Example	Description
StackName	String	Yes	MyStack	The name of the stack. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.
DisableRollback	Boolean	No	false	Specifies whether to disable rollback on stack creation failure. Default value: false. Valid values: • true: disables rollback on stack creation failure. • false: enables rollback on stack creation failure.
TimeoutInMinutes	Long	No	10	The timeout period that is specified for the stack creation request. Unit: minutes. Default value: 60.
TemplateBody	String	No	{"ROSTemplateFormatVersion": "2015-09-01" }	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Parameter	Type	Required	Example	Description
StackPolicyURL	String	No	oss://ros-stack-policy/demo	The URL of the file that contains the stack policy. The URL must point to a policy located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/stack-policy/demo and oss://ros/stack-policy/demo?RegionId=cn-hangzhou. The policy can be up to 16,384 bytes in length and the URL can be up to 1,350 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.
StackPolicyBody	String	No	{"Statement": [{"Action": "Update:*", "Resource": "*", "Effect": "Allow", "Principal": "*"}]}	The structure that contains the stack policy body. The stack policy body must be 1 to 16,384 bytes in length. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros-template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template must be 1 to 524,288 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.
Stack	Struct		Details about the stack.
Description	String	One ECS instance.	The description of the stack.
DisableRollback	Boolean	false	Indicates whether rollback is disabled.
Parameters	Array of Parameter		The parameters of the stack.
ParameterKey	String	SystemDiskCategory	The key of the parameter.
ParameterValue	String	cloud_ssd	The value of the parameter.
RegionId	String	cn-beijing	The region ID of the stack.
Resources	Array of Resource		The list of resources in the stack.

Parameter	Type	Example	Description
Description	String	ECS instance.	The description of the resource.
LogicalResourceId	String	WebServer	The logical resource ID.
Properties	Map	{ "DiskMappings": [{ "Category": "cloud_ssd", "Size": "20" }], "SystemDisk_Category": "cloud_ssd", "InstanceChargeType": "PostPaid", "AutoRenew": "False", "WillReplace": true, "ImageId": "centos_7", "InstanceType": "ecs.g6.large", "AllocatePublicIP": true, "AutoRenewPeriod": 1, "IoOptimized": "optimized", "ZoneId": "cn-beijing-g", "VSwitchId": "", "SecurityGroupId": "", "Period": 1, "InternetChargeType": "PayByTraffic", "SystemDiskCategory": "cloud_efficiency", "InternetMaxBandwidthOut": 1, "VpcId": "", "InternetMaxBandwidthIn": 200, "PeriodUnit": "Month" }	The properties of the resource.
RequiredBy	List	["Resource1", "Resource2"]	The list of one or more resources that are dependent on the stack.
ResourceType	String	ALIYUN::ECS::Instance	The type of the resource.

Parameter	Type	Example	Description
Stack	Map	{}	Details about the nested stacks. The data structure of this parameter is the same as that of the entire responses.
StackName	String	MyStack	The name of the stack.
StackPolicyBody	Map	{ "Statement": [{ "Action": "Update:*", "Resource": "*", "Effect": "Allow", "Principal": "*" }, { "Action": "Update:*", "Resource": "LogicalResourceId/apple1", "Effect": "Deny", "Principal": "*" }] }	The stack policy.
TemplateDescription	String	One ECS instance.	The description of the template.
TimeoutInMinutes	Integer	10	The timeout period. Unit: minutes.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=PreviewStack
&RegionId=cn-beijing
&Parameters.1.ParameterValue=ecs.cm4.6xlarge
&Parameters.1.ParameterKey=InstanceType
&StackName=MyStack
&TimeoutInMinutes=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PreviewStackResponse>
          <Stack>
                <Description>No description</Description>
                <DisableRollback>true</DisableRollback>
                <Parameters>
                      <ParameterKey>UpdateVersion</ParameterKey>
                      <ParameterValue>1</ParameterValue>
```

```
                </Parameters>
                <RegionId>cn-beijing</RegionId>
                <Resources>
                      <Description></Description>
                      <LogicalResourceId>WaitConditionHandle</LogicalResourceId>
                      <Properties>
                            <Count>-1</Count>
                            <Mode>Full</Mode>
                            <UpdateVersion>1</UpdateVersion>
                      </Properties>
                      <ResourceType>ALIYUN::ROS::WaitConditionHandle</ResourceType>
                </Resources>
                <Resources>
                      <Description></Description>
                      <LogicalResourceId>nested</LogicalResourceId>
                      <Properties>
                            <Parameters></Parameters>
                            <TemplateURL>oss://nested-stack/test/demo</TemplateURL>
                            <TimeoutMins>16</TimeoutMins>
                      </Properties>
                      <ResourceType>ALIYUN::ROS::Stack</ResourceType>
                      <Stack>
                            <Description>No description</Description>
                            <DisableRollback>true</DisableRollback>
                            <Parameters>
                                  <ParameterKey>ALIYUN::AccountId</ParameterKey>
                                  <ParameterValue>1666666****</ParameterValue>
                            </Parameters>
                            <Parameters>
                                  <ParameterKey>ALIYUN::NoValue</ParameterKey>
                                  <ParameterValue>None</ParameterValue>
                            </Parameters>
                            <Parameters>
                                  <ParameterKey>ALIYUN::Region</ParameterKey>
                                  <ParameterValue>cn-beijing</ParameterValue>
                            </Parameters>
                            <Parameters>
                                  <ParameterKey>ALIYUN::StackId</ParameterKey>
                                  <ParameterValue>None</ParameterValue>
                            </Parameters>
                            <Parameters>
                                  <ParameterKey>ALIYUN::StackName</ParameterKey>
                                  <ParameterValue>test-preview-stack-complex-nested</Parame
terValue>
                            </Parameters>
                            <RegionId>cn-beijing</RegionId>
                            <Resources>
                                  <Description></Description>
                                  <LogicalResourceId>WaitConditionHandle</LogicalResourceId
>
                                  <Properties>
                                        <Count>-1</Count>
                                        <Mode>Full</Mode>
                                        <UpdateVersion>1</UpdateVersion>
                                  </Properties>
```

```
                                    </Properties>
                                    <ResourceType>ALIYUN::ROS::WaitConditionHandle</ResourceT
ype>
                              </Resources>
                              <StackName>test-preview-stack-complex-nested</StackName>
                              <StackPolicyBody>
                                    <Statement>
                                          <Action>Update:*</Action>
                                          <Effect>Allow</Effect>
                                          <Principal>*</Principal>
                                          <Resource>*</Resource>
                                    </Statement>
                                    <Statement>
                                          <Action>Update:*</Action>
                                          <Effect>Deny</Effect>
                                          <Principal>*</Principal>
                                          <Resource>LogicalResourceId/apple1</Resource>
                                    </Statement>
                              </StackPolicyBody>
                              <TemplateDescription>No description</TemplateDescription>
                              <TimeoutInMinutes>12</TimeoutInMinutes>
                        </Stack>
                  </Resources>
                  <StackName>test-preview-stack-complex</StackName>
                  <StackPolicyBody>
                        <Statement>
                              <Action>Update:*</Action>
                              <Effect>Allow</Effect>
                              <Principal>*</Principal>
                              <Resource>*</Resource>
                        </Statement>
                        <Statement>
                              <Action>Update:*</Action>
                              <Effect>Deny</Effect>
                              <Principal>*</Principal>
                              <Resource>LogicalResourceId/apple1</Resource>
                        </Statement>
                  </StackPolicyBody>
                  <TemplateDescription>No description</TemplateDescription>
                  <TimeoutInMinutes>10</TimeoutInMinutes>
            </Stack>
            <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</PreviewStackResponse>
```

`JSON` format

```
{
    "Stack": {
        "Description": "No description",
        "DisableRollback": true,
        "Parameters": [
            {
                "ParameterKey": "UpdateVersion",
                "ParameterValue": "1"
```

```
            }
        ],
        "RegionId": "cn-beijing",
        "Resources": [
            {
                "Description": "",
                "LogicalResourceId": "WaitConditionHandle",
                "Properties": {
                    "Count": -1,
                    "Mode": "Full",
                    "UpdateVersion": 1
                },
                "RequiredBy": [],
                "ResourceType": "ALIYUN::ROS::WaitConditionHandle"
            },
            {
                "Description": "",
                "LogicalResourceId": "nested",
                "Properties": {
                    "Parameters": null,
                    "TemplateURL": "oss://nested-stack/test/demo",
                    "TimeoutMins": 16
                },
                "RequiredBy": [],
                "ResourceType": "ALIYUN::ROS::Stack",
                "Stack": {
                    "Description": "No description",
                    "DisableRollback": true,
                    "Parameters": [
                        {
                            "ParameterKey": "ALIYUN::AccountId",
                            "ParameterValue": "1666666****"
                        },
                        {
                            "ParameterKey": "ALIYUN::NoValue",
                            "ParameterValue": "None"
                        },
                        {
                            "ParameterKey": "ALIYUN::Region",
                            "ParameterValue": "cn-beijing"
                        },
                        {
                            "ParameterKey": "ALIYUN::StackId",
                            "ParameterValue": "None"
                        },
                        {
                            "ParameterKey": "ALIYUN::StackName",
                            "ParameterValue": "test-preview-stack-complex-nested"
                        }
                    ],
                    "RegionId": "cn-beijing",
                    "Resources": [
                        {
                            "Description": "",
```

```
                            "LogicalResourceId": "WaitConditionHandle",
                            "Properties": {
                                "Count": -1,
                                "Mode": "Full",
                                "UpdateVersion": 1
                            },
                            "RequiredBy": [],
                            "ResourceType": "ALIYUN::ROS::WaitConditionHandle"
                        }
                    ],
                    "StackName": "test-preview-stack-complex-nested",
                    "StackPolicyBody": {
                        "Statement": [
                            {
                                "Action": "Update:*",
                                "Effect": "Allow",
                                "Principal": "*",
                                "Resource": "*"
                            },
                            {
                                "Action": "Update:*",
                                "Effect": "Deny",
                                "Principal": "*",
                                "Resource": "LogicalResourceId/apple1"
                            }
                        ]
                    },
                    "TemplateDescription": "No description",
                    "TimeoutInMinutes": 12
                }
            }
        ],
        "StackName": "test-preview-stack-complex",
        "StackPolicyBody": {
            "Statement": [
                {
                    "Action": "Update:*",
                    "Effect": "Allow",
                    "Principal": "*",
                    "Resource": "*"
                },
                {
                    "Action": "Update:*",
                    "Effect": "Deny",
                    "Principal": "*",
                    "Resource": "LogicalResourceId/apple1"
                }
            ]
        },
        "TemplateDescription": "No description",
        "TimeoutInMinutes": 10
    },
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

HTTP status code	Error code	Error message	Description
400	CircularDependency	Circular Dependency Found: {reason}.	The error message returned because the template contains a circular dependency. reason indicates the specific reason.
400	InvalidSchema	{reason}.	The error message returned because the specified template format is invalid. reason indicates the specific reason.
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is incorrect. resource indicates the resource name, and name indicates the attribute name.
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is incorrect. resource indicates the resource name, and section indicates the section name.

HTTP status code	Error code	Error message	Description
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid property. section indicates the section name.
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is incorrect. reason indicates the specific reason.
400	StackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
400	UnknownUserParameter	The Parameter ({name}) was not defined in template.	The error message returned because the specified parameter is not defined in the template. name indicates the parameter key.

HTTP status code	Error code	Error message	Description
400	UserParameterMissing	The Parameter {name} was not provided.	The error message returned because no value is passed into the specified parameter defined in the template. name indicates the parameter key.
409	StackExists	The Stack ({name}) already exists.	The error message returned because a stack with the same name already exists. name indicates the stack name.

5.1.1.7.9. ListStackEvents

You can call this operation to query stacks and their resource events.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListStackEvents	The operation that you want to perform. Set the value to ListStackEvents.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Required	Example	Description
Status.N	RepeatList	No	CREATE_IN_PROGRESS	The state of resource N. Valid values: • CREATE_COMPLETE • CREATE_FAILED • CREATE_IN_PROGRESS • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • UPDATE_SKIPPED • DELETE_IN_PROGRESS • DELETE_FAILED • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • IMPORT_IN_PROGRESS • IMPORT_FAILED • IMPORT_COMPLETE
ResourceType.N	RepeatList	No	ALIYUN::ECS::Instance	The type of resource N. Maximum value of N: 200.
LogicalResourceId.N	RepeatList	No	WebServer	The logical ID of the resource as defined in the template.
PageNumber	Long	No	1	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Long	No	10	The number of entries to return on each page. Maximum value: 50. Default value: 10.

Response parameters

Parameter	Type	Example	Description
Events	Array of Event		The list of events.

Parameter	Type	Example	Description
CreateTime	String	2019-08-01T04:07:39	The time when the task was created. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
EventId	String	0086612d-77cf-4056-b0b5-ff8e94ad****	The ID of the event.
LogicalResourceId	String	WebServer	The logical ID of the resource as defined in the template.
PhysicalResourceId	String	i-m5e3tfdbinchnexh****	The physical ID of the resource.
ResourceType	String	ALIYUN::ECS::Instance	The type of the resource.
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
StackName	String	StackName	The name of the stack.
Status	String	CREATE_COMPLETE	The state of the resource.
StatusReason	String	state changed	The reason why the resource is in its current state.
PageNumber	Integer	1	The page number of the returned page. Pages start from page 1. Default value: 1.
PageSize	Integer	10	The number of entries returned per page. Maximum value: 50. Default value: 10.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
TotalCount	Integer	20	The total number of returned events.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=ListStackEvents
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListStackEventsResponse>
       <Events class="array">
              <Event class="object">
                     <CreationTime type="string">2019-08-01T05:57:56</CreationTime>
                     <EventId type="string">0086612d-77cf-4056-b0b5-ff8e94ad****</EventId>
                     <LogicalResourceId type="string">test-describe-events</LogicalResource
Id>
                     <PhysicalResourceId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****
</PhysicalResourceId>
                     <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
                     <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                     <StackName type="string">test-describe-events</StackName>
                     <Status type="string">UPDATE_COMPLETE</Status>
                     <StatusReason type="string">Stack successfully updated</StatusReason>
              </Event>
              <Event class="object">
                     <CreationTime type="string">2019-08-01T05:57:55</CreationTime>
                     <EventId type="string">2b900d01-959b-49a8-8cfe-f7de87aa****</EventId>
                     <LogicalResourceId type="string">dummy</LogicalResourceId>
                     <PhysicalResourceId type="string">a</PhysicalResourceId>
                     <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                     <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                     <StackName type="string">test-describe-events</StackName>
                     <Status type="string">UPDATE_COMPLETE</Status>
                     <StatusReason type="string">state changed</StatusReason>
              </Event>
              <Event class="object">
                     <CreationTime type="string">2019-08-01T05:57:55</CreationTime>
                     <EventId type="string">30f721d4-8124-4fd4-8afd-7b21471f****</EventId>
                     <LogicalResourceId type="string">dummy3</LogicalResourceId>
                     <PhysicalResourceId type="string">a</PhysicalResourceId>
                     <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                     <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                     <StackName type="string">test-describe-events</StackName>
                     <Status type="string">CREATE_COMPLETE</Status>
                     <StatusReason type="string">state changed</StatusReason>
              </Event>
              <Event class="object">
                     <CreationTime type="string">2019-08-01T05:57:54</CreationTime>
                     <EventId type="string">b5ecc0ac-f855-4503-945c-82d398a2****</EventId>
                     <LogicalResourceId type="string">WaitConditionHandle</LogicalResourceI
```

```
d>
                    <ResourceType type="string">ALIYUN::ROS::WaitConditionHandle</Resource
Type>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_COMPLETE</Status>
                    <StatusReason type="string">state changed</StatusReason>
             </Event>
             <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
                    <EventId type="string">a01e5730-7244-414e-b9ff-f97e3885****</EventId>
                    <LogicalResourceId type="string">dummy3</LogicalResourceId>
                    <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">CREATE_IN_PROGRESS</Status>
                    <StatusReason type="string">state changed</StatusReason>
             </Event>
             <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
                    <EventId type="string">262b2f54-7ae7-4cf6-9c8a-eb4d0801****</EventId>
                    <LogicalResourceId type="string">dummy</LogicalResourceId>
                    <PhysicalResourceId type="string">a</PhysicalResourceId>
                    <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_IN_PROGRESS</Status>
                    <StatusReason type="string">state changed</StatusReason>
             </Event>
             <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
                    <EventId type="string">163c3965-1617-4787-ba08-1eed0e3a****</EventId>
                    <LogicalResourceId type="string">nested</LogicalResourceId>
                    <PhysicalResourceId type="string">4ed7ab13-c912-4239-b064-8cea7caa****
</PhysicalResourceId>
                    <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_COMPLETE</Status>
                    <StatusReason type="string">state changed</StatusReason>
             </Event>
             <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
                    <EventId type="string">71f7c25c-2ac7-4336-9934-85482111****</EventId>
                    <LogicalResourceId type="string">nested</LogicalResourceId>
                    <PhysicalResourceId type="string">4ed7ab13-c912-4239-b064-8cea7caa****
</PhysicalResourceId>
                    <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_IN_PROGRESS</Status>
                    <StatusReason type="string">state changed</StatusReason>
             </Event>
             <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
```

```
                    <CreationTime type="string">2019-08-01T05:57:55</CreationTime>
                    <EventId type="string">a5a0eb9e-7abe-44a1-a376-70955211****</EventId>
                    <LogicalResourceId type="string">WaitConditionHandle</LogicalResourceI
d>
                    <ResourceType type="string">ALIYUN::ROS::WaitConditionHandle</Resource
Type>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_IN_PROGRESS</Status>
                    <StatusReason type="string">state changed</StatusReason>
            </Event>
            <Event class="object">
                    <CreationTime type="string">2019-08-01T05:57:53</CreationTime>
                    <EventId type="string">250f5003-f59d-46f9-8471-65d0c630****</EventId>
                    <LogicalResourceId type="string">test-describe-events</LogicalResource
Id>
                    <PhysicalResourceId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****
</PhysicalResourceId>
                    <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
                    <StackId type="string">57d0946e-c7f4-4f4e-89ae-0d4301a2****</StackId>
                    <StackName type="string">test-describe-events</StackName>
                    <Status type="string">UPDATE_IN_PROGRESS</Status>
                    <StatusReason type="string">Stack UPDATE started</StatusReason>
            </Event>
      </Events>
      <PageNumber type="number">1</PageNumber>
      <PageSize type="number">10</PageSize>
      <RequestId type="string">B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
      <TotalCount type="number">20</TotalCount>
</ListStackEventsResponse>
```

`JSON` format

```
{
   "Events": [
       {
           "CreationTime": "2019-08-01T05:57:56",
           "EventId": "0086612d-77cf-4056-b0b5-ff8e94ad****",
           "LogicalResourceId": "test-describe-events",
           "PhysicalResourceId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
           "ResourceType": "ALIYUN::ROS::Stack",
           "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
           "StackName": "test-describe-events",
           "Status": "UPDATE_COMPLETE",
           "StatusReason": "Stack successfully updated"
       },
       {
           "CreationTime": "2019-08-01T05:57:55",
           "EventId": "2b900d01-959b-49a8-8cfe-f7de87aa****",
           "LogicalResourceId": "dummy",
           "PhysicalResourceId": "a",
           "ResourceType": "ALIYUN::DEBUG::Dummy",
           "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
           "StackName": "test-describe-events",
```

```
            "Status": "UPDATE_COMPLETE",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:55",
            "EventId": "30f721d4-8124-4fd4-8afd-7b21471f****",
            "LogicalResourceId": "dummy3",
            "PhysicalResourceId": "a",
            "ResourceType": "ALIYUN::DEBUG::Dummy",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "CREATE_COMPLETE",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:54",
            "EventId": "b5ecc0ac-f855-4503-945c-82d398a2****",
            "LogicalResourceId": "WaitConditionHandle",
            "ResourceType": "ALIYUN::ROS::WaitConditionHandle",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_COMPLETE",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "a01e5730-7244-414e-b9ff-f97e3885****",
            "LogicalResourceId": "dummy3",
            "ResourceType": "ALIYUN::DEBUG::Dummy",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "CREATE_IN_PROGRESS",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "262b2f54-7ae7-4cf6-9c8a-eb4d0801****",
            "LogicalResourceId": "dummy",
            "PhysicalResourceId": "a",
            "ResourceType": "ALIYUN::DEBUG::Dummy",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_IN_PROGRESS",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "163c3965-1617-4787-ba08-1eed0e3a****",
            "LogicalResourceId": "nested",
            "PhysicalResourceId": "4ed7ab13-c912-4239-b064-8cea7caa****",
            "ResourceType": "ALIYUN::ROS::Stack",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_COMPLETE",
```

```
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "71f7c25c-2ac7-4336-9934-85482111****",
            "LogicalResourceId": "nested",
            "PhysicalResourceId": "4ed7ab13-c912-4239-b064-8cea7caa****",
            "ResourceType": "ALIYUN::ROS::Stack",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_IN_PROGRESS",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "a5a0eb9e-7abe-44a1-a376-70955211****",
            "LogicalResourceId": "WaitConditionHandle",
            "ResourceType": "ALIYUN::ROS::WaitConditionHandle",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_IN_PROGRESS",
            "StatusReason": "state changed"
        },
        {
            "CreationTime": "2019-08-01T05:57:53",
            "EventId": "250f5003-f59d-46f9-8471-65d0c630****",
            "LogicalResourceId": "test-describe-events",
            "PhysicalResourceId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "ResourceType": "ALIYUN::ROS::Stack",
            "StackId": "57d0946e-c7f4-4f4e-89ae-0d4301a2****",
            "StackName": "test-describe-events",
            "Status": "UPDATE_IN_PROGRESS",
            "StatusReason": "Stack UPDATE started"
        }
    ],
    "PageNumber": 1,
    "PageSize": 10,
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
    "TotalCount": 20
}
```


HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.8. Resource operations

5.1.1.8.1. GetResourceTypeTemplate

You can call this operation to query the template of a resource by resource type.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetResourceTypeTemplate	The operation that you want to perform. Set the value to GetResourceTypeTemplate.
ResourceType	String	Yes	ALIYUN::ECS::VPC	The type of the resource.

Response parameters

Parameter	Type	Example	Description
RequestId	String	87F54B2B-AEF0-4C33-A72A-3F8856A575E9	The ID of the request.
TemplateBody	Map	{"ROSTemplateFormatVersion": "2015-09-01"}	The structure that contains the template body. The template body must be 1 to 51,200 bytes in length.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetResourceTypeTemplate
&ResourceType=ALIYUN::ECS::VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetResourceTypeTemplateResponse>
	<RequestId type="string">87F54B2B-AEF0-4C33-A72A-3F8856A575E9</RequestId>
	<TemplateBody class="object">
		<Parameters class="object">
			<CidrBlock class="object">
				<Type type="string">String</Type>
			</CidrBlock>
			<Description class="object">
				<Type type="string">String</Type>
			</Description>
			<ResourceGroupId class="object">
				<Type type="string">String</Type>
			</ResourceGroupId>
			<VpcName class="object">
				<Type type="string">String</Type>
			</VpcName>
		</Parameters>
		<ROSTemplateFormatVersion type="string">2015-09-01</ROSTemplateFormatVersion>
		<Resources class="object">
			<Vpc class="object">
				<Properties class="object">
					<CidrBlock class="object">
						<Ref type="string">CidrBlock</Ref>
					</CidrBlock>
					<Description class="object">
						<Ref type="string">Description</Ref>
					</Description>
					<ResourceGroupId class="object">
						<Ref type="string">ResourceGroupId</Ref>
					</ResourceGroupId>
					<VpcName class="object">
						<Ref type="string">VpcName</Ref>
					</VpcName>
				</Properties>
				<Type type="string">ALIYUN::ECS::VPC</Type>
			</Vpc>
		</Resources>
	</TemplateBody>
</GetResourceTypeTemplateResponse>
```

`JSON` format

```
{
  "RequestId": "87F54B2B-AEF0-4C33-A72A-3F8856A575E9",
  "TemplateBody": {
    "Parameters": {
      "CidrBlock": {
        "Type": "String"
      },
      "Description": {
        "Type": "String"
      },
      "ResourceGroupId": {
        "Type": "String"
      },
      "VpcName": {
        "Type": "String"
      }
    },
    "ROSTemplateFormatVersion": "2015-09-01",
    "Resources": {
      "Vpc": {
        "Properties": {
          "CidrBlock": {
            "Ref": "CidrBlock"
          },
          "Description": {
            "Ref": "Description"
          },
          "ResourceGroupId": {
            "Ref": "ResourceGroupId"
          },
          "VpcName": {
            "Ref": "VpcName"
          }
        },
        "Type": "ALIYUN::ECS::VPC"
      }
    }
  }
}
```


HTTP status code	Error code	Error message	Description
404	ResourceTypeNotFound	The Resource Type ({name}) could not be found.	The error message returned because the specified resource type does not exist. name indicates the name of the resource type.

5.1.1.8.2. ListStackResources

You can call this operation to query the resource list of a specific stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListStackResources	The operation that you want to perform. Set the value to ListStackResources.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
Resources	Array of Resource		The list of resources.
CreateTime	String	2019-08-01T06:01:23	The time when the resource was created. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format. The time is displayed in UTC.
DriftDetectionTime	String	2020-02-27T07:47:47	The time when the last successful drift detection operation was initiated.
LogicalResourceId	String	dummy	The logical resource ID defined in the template.
PhysicalResourceId	String	d04af923-e6b7-4272-aeaa-47ec9777****	The physical ID of the resource.

Parameter	Type	Example	Description
ResourceDriftStatus	String	IN_SYNC	The drift state of the resource in the last successful drift detection. Valid values: • DELETED: The actual configuration of the resource differs from its expected template configuration because the resource has been deleted. • MODIFIED: The actual configuration of the resource differs from its expected template configuration. • NOT_CHECKED: ROS has not checked whether the actual configuration of the resource differs from its expected template configuration. • IN_SYNC: The actual configuration of the resource matches its expected template configuration.
ResourceType	String	ALIYUN::ROS::Stack	The type of the resource.
StackId	String	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
StackName	String	test-describe-resource	The name of the stack. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.

Parameter	Type	Example	Description
Status	String	UPDATE_COMPLETE	The state of the resource. Valid values: • CREATE_COMPLETE • CREATE_FAILED • CREATE_IN_PROGRESS • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • DELETE_IN_PROGRESS • DELETE_FAILED • DELETE_COMPLETE • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • IMPORT_IN_PROGRESS • IMPORT_FAILED • IMPORT_COMPLETE
StatusReason	String	state changed	The reason why the resource is in its current state.
UpdateTime	String	2019-08-01T06:01:29	The time when the resource was last updated. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format. The time is displayed in UTC.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=ListStackResources
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListStackResourcesResponse>
       <RequestId type="string">B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
       <Resources class="array">
              <Resource class="object">
                     <CreationTime type="string">2019-08-01T06:01:23</CreationTime>
                     <LogicalResourceId type="string">dummy</LogicalResourceId>
                     <PhysicalResourceId type="string">a</PhysicalResourceId>
                     <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
```

```
                        <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                        <StackId type="string">efdf5c10-96a5-4fd7-ab89-68e7baa2****</StackId>
                        <StackName type="string">test-describe-resource</StackName>
                        <Status type="string">UPDATE_COMPLETE</Status>
                        <StatusReason type="string">state changed</StatusReason>
                        <UpdatedTime type="string">2019-08-01T06:01:29</UpdatedTime>
                        <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
                        <ResourceDriftStatus>IN_SYNC</ResourceDriftStatus>
                </Resource>
                <Resource class="object">
                        <CreationTime type="string">2019-08-01T06:01:28</CreationTime>
                        <LogicalResourceId type="string">dummy3</LogicalResourceId>
                        <PhysicalResourceId type="string">a</PhysicalResourceId>
                        <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
                        <StackId type="string">efdf5c10-96a5-4fd7-ab89-68e7baa2****</StackId>
                        <StackName type="string">test-describe-resource</StackName>
                        <Status type="string">CREATE_COMPLETE</Status>
                        <StatusReason type="string">state changed</StatusReason>
                        <UpdatedTime type="string">2019-08-01T06:01:29</UpdatedTime>
                        <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
                        <ResourceDriftStatus>IN_SYNC</ResourceDriftStatus>
                </Resource>
                <Resource class="object">
                        <CreationTime type="string">2019-08-01T06:01:23</CreationTime>
                        <LogicalResourceId type="string">WaitConditionHandle</LogicalResourceI
d>
                        <PhysicalResourceId type="string"></PhysicalResourceId>
                        <ResourceType type="string">ALIYUN::ROS::WaitConditionHandle</Resource
Type>
                        <StackId type="string">efdf5c10-96a5-4fd7-ab89-68e7baa2****</StackId>
                        <StackName type="string">test-describe-resource</StackName>
                        <Status type="string">UPDATE_COMPLETE</Status>
                        <StatusReason type="string">state changed</StatusReason>
                        <UpdatedTime type="string">2019-08-01T06:01:29</UpdatedTime>
                        <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
                        <ResourceDriftStatus>IN_SYNC</ResourceDriftStatus>
                </Resource>
                <Resource class="object">
                        <CreationTime type="string">2019-08-01T06:01:23</CreationTime>
                        <LogicalResourceId type="string">nested</LogicalResourceId>
                        <PhysicalResourceId type="string">d04af923-e6b7-4272-aeaa-47ec9777****
</PhysicalResourceId>
                        <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
                        <StackId type="string">efdf5c10-96a5-4fd7-ab89-68e7baa2****</StackId>
                        <StackName type="string">test-describe-resource</StackName>
                        <Status type="string">UPDATE_COMPLETE</Status>
                        <StatusReason type="string">state changed</StatusReason>
                        <UpdatedTime type="string">2019-08-01T06:01:28</UpdatedTime>
                        <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
                        <ResourceDriftStatus>IN_SYNC</ResourceDriftStatus>
                </Resource>
        </Resources>
</ListStackResourcesResponse>
```

`JSON` format


```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
   "Resources": [
       {
           "CreationTime": "2019-08-01T06:01:23",
           "LogicalResourceId": "dummy",
           "PhysicalResourceId": "a",
           "ResourceType": "ALIYUN::DEBUG::Dummy",
           "StackId": "efdf5c10-96a5-4fd7-ab89-68e7baa2****",
           "StackName": "test-describe-resource",
           "Status": "UPDATE_COMPLETE",
           "StatusReason": "state changed",
           "UpdatedTime": "2019-08-01T06:01:29",
           "DriftDetectionTime": "2020-02-27T07:47:47",
        "ResourceDriftStatus": "IN_SYNC"
       },
       {
           "CreationTime": "2019-08-01T06:01:28",
           "LogicalResourceId": "dummy3",
           "PhysicalResourceId": "a",
           "ResourceType": "ALIYUN::DEBUG::Dummy",
           "StackId": "efdf5c10-96a5-4fd7-ab89-68e7baa2****",
           "StackName": "test-describe-resource",
           "Status": "CREATE_COMPLETE",
           "StatusReason": "state changed",
           "UpdatedTime": "2019-08-01T06:01:29",
           "DriftDetectionTime": "2020-02-27T07:47:47",
        "ResourceDriftStatus": "IN_SYNC"
       },
       {
           "CreationTime": "2019-08-01T06:01:23",
           "LogicalResourceId": "WaitConditionHandle",
           "PhysicalResourceId": "",
           "ResourceType": "ALIYUN::ROS::WaitConditionHandle",
           "StackId": "efdf5c10-96a5-4fd7-ab89-68e7baa2****",
           "StackName": "test-describe-resource",
           "Status": "UPDATE_COMPLETE",
           "StatusReason": "state changed",
           "UpdatedTime": "2019-08-01T06:01:29",
           "DriftDetectionTime": "2020-02-27T07:47:47",
        "ResourceDriftStatus": "IN_SYNC"
       },
       {
           "CreationTime": "2019-08-01T06:01:23",
           "LogicalResourceId": "nested",
           "PhysicalResourceId": "d04af923-e6b7-4272-aeaa-47ec9777****",
           "ResourceType": "ALIYUN::ROS::Stack",
           "StackId": "efdf5c10-96a5-4fd7-ab89-68e7baa2e0d5",
           "StackName": "test-describe-resource",
           "Status": "UPDATE_COMPLETE",
           "StatusReason": "state changed",
           "UpdatedTime": "2019-08-01T06:01:28",
```

```
            "DriftDetectionTime": "2020-02-27T07:47:47",
          "ResourceDriftStatus": "IN_SYNC"
        }
    ]
}
```

Error code	Error message	HTTP status code	Description
StackNotFound	The Stack ({name}) could not be found.	404	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.8.3. GetStackResource

You can call this operation to query information about a resource in a specific stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetStackResource	The operation that you want to perform. Set the value to GetStackResource.
LogicalResourceId	String	Yes	WebServer	The logical ID of the resource as defined in the template.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).

Parameter	Type	Required	Example	Description
ShowResourceAttributes	Boolean	No	true	Specifies whether to query resource attributes. Valid values: • true • false

Response parameters

Parameter	Type	Example	Description
Status	String	CREATE_COMPLETE	The state of the resource. Valid values: • CREATE_COMPLETE • CREATE_FAILED • CREATE_IN_PROGRESS • UPDATE_IN_PROGRESS • UPDATE_FAILED • UPDATE_COMPLETE • DELETE_IN_PROGRESS • DELETE_FAILED • CHECK_IN_PROGRESS • CHECK_FAILED • CHECK_COMPLETE • IMPORT_IN_PROGRESS • IMPORT_FAILED • IMPORT_COMPLETE
Description	String	no description	The description of the resource.
LogicalResourceId	String	WebServer	The logical ID of the resource as defined in the template.
StackId	String	efdf5c10-96a5-4fd7-ab89-68e7baa2****	The ID of the stack.
StackName	String	test-describe-resource	The name of the stack. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.

Parameter	Type	Example	Description
StatusReason	String	state changed	The reason why the resource is in its current state.
PhysicalResourceId	String	d04af923-e6b7-4272-aeaa-47ec9777****	The physical ID of the resource.
ResourceType	String	ALIYUN::ROS::WaitConditionHandle	The type of the resource.
CreateTime	String	2019-08-01T06:01:23	The time when the stack was created. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.
Metadata	Map	{"key": "value"}	The metadata.
UpdateTime	String	2019-08-01T06:01:29	The time when the stack was last updated. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ss format. The time is displayed in UTC.

Parameter	Type	Example	Description
ResourceAttributes	List	[{ "ResourceAttributeValue":"curl -Uri \"http://100.100.XX.XX/waitcondition?stackname=test-describe-resource&stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****&resource=WaitConditionHandle&expire=156468****&signature=991d910a901a89db6580d74233119960c004****\" -Method Post -Headers @{\"Content-Type\"=\"application/json\"; \"Accept\"=\"application/json\"; \"x-acs-region-id\"=\"cn-beijing\"}", "ResourceAttributeKey":"PowerShellCurlCli" }]	The list of resource attributes.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
DriftDetectionTime	String	2020-02-27T07:47:47	The time when the last successful drift detection operation was initiated.

Parameter	Type	Example	Description
ResourceDriftStatus	String	IN_SYNC	The drift state of the resource in the last successful drift detection. Valid values: • DELETED: The actual configuration of the resource differs from its expected template configuration because the resource had been deleted. • MODIFIED: The actual configuration of the resource differs from its expected template configuration. • NOT_CHECKED: ROS has not checked whether the actual configuration of the resource differs from its expected template configuration. • IN_SYNC: The actual configuration of the resource matches its expected template configuration.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetStackResource
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&LogicalResourceId=WebServer
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetStackResourceResponse>
          <CreateTime>2019-08-01T06:01:23</CreateTime>
          <Description></Description>
          <LogicalResourceId>WaitConditionHandle</LogicalResourceId>
          <Metadata></Metadata>
          <PhysicalResourceId></PhysicalResourceId>
          <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
          <ResourceAttributes>
                <ResourceAttributeKey>CurlCli</ResourceAttributeKey>
                <ResourceAttributeValue>curl -i -X POST -H 'Content-Type: application/json'
-H 'Accept: application/json' -H 'x-acs-region-id: cn-beijing' http://100.100.XX.XX/waitcon
dition?stackname=test-describe-resource\&amp;stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****\&
amp;resource=WaitConditionHandle\&amp;expire=156468****\&amp;signature=991d910a901a89db6580
d74233119960c004****</ResourceAttributeValue>
          </ResourceAttributes>
          <ResourceAttributes>
                <ResourceAttributeKey>WindowsCurlCli</ResourceAttributeKey>
                <ResourceAttributeValue>curl -i -X POST -H "Content-Type: application/json"
-H "Accept: application/json" -H "x-acs-region-id: cn-beijing" "http://100.100.XX.XX/waitco
ndition?stackname=test-describe-resource&amp;stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****&a
mp;resource=WaitConditionHandle&amp;expire=156468****&amp;signature=991d910a901a89db6580d74
233119960c004****"</ResourceAttributeValue>
          </ResourceAttributes>
          <ResourceAttributes>
                <ResourceAttributeKey>PowerShellCurlCli</ResourceAttributeKey>
                <ResourceAttributeValue>curl -Uri "http://100.100.XX.XX/waitcondition?stack
name=test-describe-resource&amp;stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****&amp;resource=W
aitConditionHandle&amp;expire=156468****&amp;signature=991d910a901a89db6580d74233119960c004
****" -Method Post -Headers @{"Content-Type"="application/json"; "Accept"="application/json
"; "x-acs-region-id"="cn-beijing"}</ResourceAttributeValue>
          </ResourceAttributes>
          <ResourceType>ALIYUN::ROS::WaitConditionHandle</ResourceType>
          <StackId>efdf5c10-96a5-4fd7-ab89-68e7baa2****</StackId>
          <StackName>test-describe-resource</StackName>
          <Status>UPDATE_COMPLETE</Status>
          <StatusReason>state changed</StatusReason>
          <UpdateTime>2019-08-01T06:01:29</UpdateTime>
          <DriftDetectionTime>2020-02-27T07:47:47</DriftDetectionTime>
          <ResourceDriftStatus>IN_SYNC</ResourceDriftStatus>
</GetStackResourceResponse>
```

`JSON` format

```
{
    "CreateTime": "2019-08-01T06:01:23",
    "Description": "",
    "LogicalResourceId": "WaitConditionHandle",
    "Metadata": {},
    "PhysicalResourceId": "",
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
    "ResourceAttributes": [
        {
            "ResourceAttributeKey": "CurlCli",
            "ResourceAttributeValue": "curl -i -X POST -H 'Content-Type: application/json'
-H 'Accept: application/json' -H 'x-acs-region-id: cn-beijing' http://100.100.XX.XX/waitcon
dition?stackname=test-describe-resource\\&stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****\\&re
source=WaitConditionHandle\\&expire=156468****\\&signature=991d910a901a89db6580d74233119960
c004****"
        },
        {
            "ResourceAttributeKey": "WindowsCurlCli",
            "ResourceAttributeValue": "curl -i -X POST -H \"Content-Type: application/json\
" -H \"Accept: application/json\" -H \"x-acs-region-id: cn-beijing\" \"http://100.100.XX.XX
/waitcondition?stackname=test-describe-resource&stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2***
*&resource=WaitConditionHandle&expire=156468****&signature=991d910a901a89db6580d74233119960
c004****\""
        },
        {
            "ResourceAttributeKey": "PowerShellCurlCli",
            "ResourceAttributeValue": "curl -Uri \"http://100.100.XX.XX/waitcondition?stack
name=test-describe-resource&stackid=efdf5c10-96a5-4fd7-ab89-68e7baa2****&resource=WaitCondi
tionHandle&expire=156468****&signature=991d910a901a89db6580d74233119960c004****\" -Method P
ost -Headers @{\"Content-Type\"=\"application/json\"; \"Accept\"=\"application/json\"; \"x-
acs-region-id\"=\"cn-beijing\"}"
        }
    ],
    "ResourceType": "ALIYUN::ROS::WaitConditionHandle",
    "StackId": "efdf5c10-96a5-4fd7-ab89-68e7baa2****",
    "StackName": "test-describe-resource",
    "Status": "UPDATE_COMPLETE",
    "StatusReason": "state changed",
    "UpdateTime": "2019-08-01T06:01:29",
    "DriftDetectionTime": "2020-02-27T07:47:47",
    "ResourceDriftStatus": "IN_SYNC"
}
```


HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
404	ResourceNotFound	The Resource ({name}) could not be found in Stack {stack}.	The error message returned because the specified resource does not exist in the stack. name indicates the resource name, and stack indicates the name or ID of the stack.
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.8.4. GetResourceType

You can call this operation to query details about resource types.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetResourceType	The operation that you want to perform. Set the value to GetResourceType.
ResourceType	String	Yes	ALIYUN::ROS::WaitConditionHandle	The type of the resource.

Response parameters

Parameter	Type	Example	Description
Attributes	Map	{"CurlCli": {},"PowerShellCurlCli": {},"WindowsCurlCli": {}}	The attributes of the resource.
Properties	Map	{"Count": {},"Mode": {"Constraints": []}}	The properties of the resource.

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
ResourceType	String	ALIYUN::ROS::WaitConditionHandle	The type of the resource.
SupportDriftDetection	Boolean	false	Indicates whether the resource supports drift detection. Valid values: • true: The resource supports drift detection. • false: The resource does not support drift detection.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetResourceType
&ResourceType=ALIYUN::SLB::LoadBalancer
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetResourceTypeResponse>
       <Attributes class="object">
              <CurlCli class="object">
                     <Description type="string">Convenience attribute, provides curl CLI command prefix, which can be used for signalling handle completion or failure.  You can signal success by adding --data-binary '{"status": "SUCCESS"}' , or signal failure by adding --data-binary '{"status": "FAILURE"}'</Description>
              </CurlCli>
              <PowerShellCurlCli class="object">
                     <Description type="string">Convenience attribute, provides curl CLI command prefix for PowerShell, which can be used for signalling handle completion or failure. As this cmdlet was introduced in PowerShell 3.0, ensure the version of PowerShell satisfies the constraint. (Show the version via $PSVersionTable.PSVersion.) You can signal success by adding -Body '{"status": "SUCCESS"}' , or signal failure by adding -Body '{"status": "FAILURE"}' </Description>
              </PowerShellCurlCli>
              <WindowsCurlCli class="object">
                     <Description type="string">Convenience attribute, provides curl CLI command prefix for Windows, which can be used for signalling handle completion or failure. As Windows does not support curl command, you need to install curl.exe and add it to PATH first. You can signal success by adding --data-binary "{\"status\": \"SUCCESS\"}" , or signal failure by adding --data-binary "{\"status\": \"FAILURE\"}" </Description>
              </WindowsCurlCli>
       </Attributes>
       <Properties class="object">
```

```
        <Properties class="object">
                <Count class="object">
                        <Default type="number">-1</Default>
                        <Description type="string">There are 3 preconditions that make Count t
aking effect:
1.Mode is set to Full.
2.Count &gt;= 0.
3.The id of signal is not specified. If so, it will be a self-increasing integer started fr
om 1. For example, the id of the first signal is 1, the id of the second signal is 2, and s
o on.
If Count takes effect, signals with id &gt; Count will be deleted before update.
The default value is -1, which means no effect.
It is recommended to quote the same value with WaitCondition.Count. </Description>
                        <Immutable type="boolean">false</Immutable>
                        <Required type="boolean">false</Required>
                        <Type type="string">integer</Type>
                        <UpdateAllowed type="boolean">true</UpdateAllowed>
                </Count>
                <Mode class="object">
                        <Constraints class="array">
                                <e class="object">
                                        <AllowedValues class="array">
                                                <e type="string">Increment</e>
                                                <e type="string">Full</e>
                                        </AllowedValues>
                                </e>
                        </Constraints>
                        <Default type="string">Full</Default>
                        <Description type="string">If set to Increment, all old signals will b
e deleted before update. In this mode, WaitCondition.Count should reference an incremental
value instead of a full value, such as ScalingGroupEnable.ScalingRuleArisExecuteResultNumbe
rOfAddedInstances.
If set to Full, no old signal will be deleted unless Count is set. In this mode, WaitCondit
ion.Count should reference a full value, such as the same value with InstanceGroup.MaxAmoun
t. It is recommended to use this mode with Count.
Default to Full. </Description>
                        <Immutable type="boolean">false</Immutable>
                        <Required type="boolean">false</Required>
                        <Type type="string">string</Type>
                        <UpdateAllowed type="boolean">true</UpdateAllowed>
                </Mode>
        </Properties>
        <RequestId type="string">BA4C8BF3-482E-4B03-A1E3-C60DB7A95DE0</RequestId>
        <ResourceType type="string">ALIYUN::ROS::WaitConditionHandle</ResourceType>
        <SupportDriftDetection type="boolean">false</SupportDriftDetection>
</GetResourceTypeResponse>
```

`JSON` format

```
{
    "Attributes": {
        "CurlCli": {
            "Description": "Convenience attribute, provides curl CLI command prefix, which
can be used for signalling handle completion or failure.  You can signal success by adding
```

```
--data-binary '{\"status\": \"SUCCESS\"}' , or signal failure by adding --data-binary '{\"s
tatus\": \"FAILURE\"}'"
        },
        "PowerShellCurlCli": {
            "Description": "Convenience attribute, provides curl CLI command prefix for Pow
erShell, which can be used for signalling handle completion or failure. As this cmdlet was
introduced in PowerShell 3.0, ensure the version of PowerShell satisfies the constraint. (S
how the version via $PSVersionTable.PSVersion.) You can signal success by adding -Body '{\"
status\": \"SUCCESS\"}' , or signal failure by adding -Body '{\"status\": \"FAILURE\"}' "
        },
        "WindowsCurlCli": {
            "Description": "Convenience attribute, provides curl CLI command prefix for Win
dows, which can be used for signalling handle completion or failure. As Windows does not su
pport curl command, you need to install curl.exe and add it to PATH first. You can signal s
uccess by adding --data-binary \"{\\\"status\\\": \\\"SUCCESS\\\"}\" , or signal failure by
adding --data-binary \"{\\\"status\\\": \\\"FAILURE\\\"}\" "
        }
    },
    "Properties": {
        "Count": {
            "Default": -1,
            "Description": "There are 3 preconditions that make Count taking effect:\n1.Mod
e is set to Full.\n2.Count >= 0.\n3.The id of signal is not specified. If so, it will be a
self-increasing integer started from 1. For example, the id of the first signal is 1, the i
d of the second signal is 2, and so on.\n\nIf Count takes effect, signals with id > Count w
ill be deleted before update.\nThe default value is -1, which means no effect.\nIt is recom
mended to quote the same value with WaitCondition.Count.",
            "Immutable": false,
            "Required": false,
            "Type": "integer",
            "UpdateAllowed": true
        },
        "Mode": {
            "Constraints": [
                {
                    "AllowedValues": [
                        "Increment",
                        "Full"
                    ]
                }
            ],
            "Default": "Full",
            "Description": "If set to Increment, all old signals will be deleted before upd
ate. In this mode, WaitCondition.Count should reference an incremental value instead of a f
ull value, such as ScalingGroupEnable.ScalingRuleArisExecuteResultNumberOfAddedInstances.\n
\nIf set to Full, no old signal will be deleted unless Count is set. In this mode, WaitCond
ition.Count should reference a full value, such as the same value with InstanceGroup.MaxAmo
unt. It is recommended to use this mode with Count.\n\nDefault to Full.",
            "Immutable": false,
            "Required": false,
            "Type": "string",
            "UpdateAllowed": true
        }
    },
    "RequestId": "B14C0DF2-402F-4D02-A1F2-C60DD7A05DF0"
```

```
    "RequestId": "BA4C8BF3-482E-4B03-A1E3-C60DB7A95DE0",
    "ResourceType": "ALIYUN::ROS::WaitConditionHandle",
    "SupportDriftDetection": false
}
```

HTTP status code	Error code	Error message	Description
404	ResourceTypeNotFound	The Resource Type ({name}) could not be found.	The error message returned because the specified resource type does not exist. name indicates the name of the resource type.

5.1.1.8.5. ListResourceTypes

Queries the list of supported resource types.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListResourceTypes	The operation that you want to perform. Set the value to ListResourceTypes.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
ResourceTypes	List	["ALIYUN::ECS::Instance","ALIYUN::RDS::Instance"]	The array of resource types.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/?Action=ListResourceTypes
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListResourceTypesResponse>
       <RequestId type="string">B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
       <ResourceTypes class="array">
              <ResourceType type="string">ALIYUN::ACTIONTRAIL::Trail</ResourceType>
              <ResourceType type="string">ALIYUN::ACTIONTRAIL::TrailLogging</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::Api</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::App</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::Authorization</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::CustomDomain</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::Deployment</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::Group</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::Signature</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::SignatureBinding</ResourceTyp
e>
              <ResourceType type="string">ALIYUN::ApiGateway::StageConfig</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::TrafficControl</ResourceType>
              <ResourceType type="string">ALIYUN::ApiGateway::TrafficControlBinding</Resour
ceType>
              <ResourceType type="string">ALIYUN::ApiGateway::VpcAccessConfig</ResourceType
>
              <ResourceType type="string">ALIYUN::BSS::WaitOrder</ResourceType>
              <ResourceType type="string">ALIYUN::CDN::Domain</ResourceType>
              <ResourceType type="string">ALIYUN::CDN::DomainConfig</ResourceType>
              <ResourceType type="string">ALIYUN::CEN::CenBandwidthLimit</ResourceType>
              <ResourceType type="string">ALIYUN::CEN::CenBandwidthPackage</ResourceType>
              <ResourceType type="string">ALIYUN::CEN::CenBandwidthPackageAssociation</Reso
urceType>
              <ResourceType type="string">ALIYUN::CEN::CenInstance</ResourceType>
              <ResourceType type="string">ALIYUN::CEN::CenInstanceAttachment</ResourceType>
              <ResourceType type="string">ALIYUN::CEN::RouteEntry</ResourceType>
              <ResourceType type="string">ALIYUN::CS::App</ResourceType>
              <ResourceType type="string">ALIYUN::CS::Cluster</ResourceType>
              <ResourceType type="string">ALIYUN::DEBUG::Apple</ResourceType>
              <ResourceType type="string">ALIYUN::DEBUG::Dummy</ResourceType>
              <ResourceType type="string">ALIYUN::DEBUG::Failure</ResourceType>
              <ResourceType type="string">ALIYUN::DEBUG::Secret</ResourceType>
              <ResourceType type="string">ALIYUN::DEBUG::Update</ResourceType>
              <ResourceType type="string">ALIYUN::DNS::Domain</ResourceType>
              <ResourceType type="string">ALIYUN::DNS::DomainGroup</ResourceType>
              <ResourceType type="string">ALIYUN::DNS::DomainRecord</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::AutoSnapshotPolicy</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::BandwidthPackage</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::Command</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::CopyImage</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::CustomImage</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::DedicatedHost</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::DeploymentSet</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::Disk</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::DiskAttachment</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::ForwardEntry</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::Instance</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::InstanceClone</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::InstanceGroup</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::InstanceGroupClone</ResourceType>
              <ResourceType type="string">ALIYUN::ECS::Invocation</ResourceType>
```

```
                <ResourceType type="string">ALIYUN::ECS::JoinSecurityGroup</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::LaunchTemplate</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::NatGateway</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::NetworkInterface</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::NetworkInterfaceAttachment</Resource
Type>
                <ResourceType type="string">ALIYUN::ECS::NetworkInterfacePermission</Resource
Type>
                <ResourceType type="string">ALIYUN::ECS::PrepayInstance</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::PrepayInstanceGroupClone</ResourceTy
pe>
                <ResourceType type="string">ALIYUN::ECS::Route</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SNatEntry</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SSHKeyPair</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SSHKeyPairAttachment</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SecurityGroup</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SecurityGroupClone</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SecurityGroupEgress</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::SecurityGroupIngress</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::Snapshot</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::VPC</ResourceType>
                <ResourceType type="string">ALIYUN::ECS::VSwitch</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::AlarmTask</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::AlarmTaskEnable</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::LifecycleHook</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::ScalingConfiguration</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::ScalingGroup</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::ScalingGroupEnable</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::ScalingRule</ResourceType>
                <ResourceType type="string">ALIYUN::ESS::ScheduledTask</ResourceType>
                <ResourceType type="string">ALIYUN::FC::Function</ResourceType>
                <ResourceType type="string">ALIYUN::FC::FunctionInvoker</ResourceType>
                <ResourceType type="string">ALIYUN::FC::Service</ResourceType>
                <ResourceType type="string">ALIYUN::FC::Trigger</ResourceType>
                <ResourceType type="string">ALIYUN::KMS::Alias</ResourceType>
                <ResourceType type="string">ALIYUN::KMS::Key</ResourceType>
                <ResourceType type="string">ALIYUN::MEMCACHE::Instance</ResourceType>
                <ResourceType type="string">ALIYUN::MNS::Queue</ResourceType>
                <ResourceType type="string">ALIYUN::MNS::Subscription</ResourceType>
                <ResourceType type="string">ALIYUN::MNS::Topic</ResourceType>
                <ResourceType type="string">ALIYUN::MONGODB::Instance</ResourceType>
                <ResourceType type="string">ALIYUN::MONGODB::PrepayInstance</ResourceType>
                <ResourceType type="string">ALIYUN::MarketPlace::Image</ResourceType>
                <ResourceType type="string">ALIYUN::MarketPlace::Order</ResourceType>
                <ResourceType type="string">ALIYUN::NAS::AccessGroup</ResourceType>
                <ResourceType type="string">ALIYUN::NAS::AccessRule</ResourceType>
                <ResourceType type="string">ALIYUN::NAS::FileSystem</ResourceType>
                <ResourceType type="string">ALIYUN::NAS::MountTarget</ResourceType>
                <ResourceType type="string">ALIYUN::OSS::Bucket</ResourceType>
                <ResourceType type="string">ALIYUN::OTS::Instance</ResourceType>
                <ResourceType type="string">ALIYUN::OTS::VpcBinder</ResourceType>
                <ResourceType type="string">ALIYUN::PVTZ::Zone</ResourceType>
                <ResourceType type="string">ALIYUN::PVTZ::ZoneRecord</ResourceType>
                <ResourceType type="string">ALIYUN::PVTZ::ZoneVpcBinder</ResourceType>
```

```
            <ResourceType type="string">ALIYUN::RAM::AccessKey</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::AttachPolicyToRole</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::Group</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::ManagedPolicy</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::Role</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::User</ResourceType>
            <ResourceType type="string">ALIYUN::RAM::UserToGroupAddition</ResourceType>
            <ResourceType type="string">ALIYUN::RDS::Account</ResourceType>
            <ResourceType type="string">ALIYUN::RDS::AccountPrivilege</ResourceType>
            <ResourceType type="string">ALIYUN::RDS::DBInstance</ResourceType>
            <ResourceType type="string">ALIYUN::RDS::DBInstanceParameterGroup</ResourceTy
pe>
            <ResourceType type="string">ALIYUN::RDS::DBInstanceSecurityIps</ResourceType>
            <ResourceType type="string">ALIYUN::RDS::PrepayDBInstance</ResourceType>
            <ResourceType type="string">ALIYUN::REDIS::Instance</ResourceType>
            <ResourceType type="string">ALIYUN::REDIS::PrepayInstance</ResourceType>
            <ResourceType type="string">ALIYUN::ROS::Stack</ResourceType>
            <ResourceType type="string">ALIYUN::ROS::WaitCondition</ResourceType>
            <ResourceType type="string">ALIYUN::ROS::WaitConditionHandle</ResourceType>
            <ResourceType type="string">ALIYUN::SAG::ACL</ResourceType>
            <ResourceType type="string">ALIYUN::SAG::ACLAssociation</ResourceType>
            <ResourceType type="string">ALIYUN::SAG::ACLRule</ResourceType>
            <ResourceType type="string">ALIYUN::SAG::CloudConnectNetwork</ResourceType>
            <ResourceType type="string">ALIYUN::SAG::SmartAccessGatewayBinding</ResourceT
ype>
            <ResourceType type="string">ALIYUN::SLB::AccessControl</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::BackendServerAttachment</ResourceTyp
e>
            <ResourceType type="string">ALIYUN::SLB::BackendServerToVServerGroupAddition<
/ResourceType>
            <ResourceType type="string">ALIYUN::SLB::Certificate</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::DomainExtension</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::Listener</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::LoadBalancer</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::LoadBalancerClone</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::MasterSlaveServerGroup</ResourceType
>
            <ResourceType type="string">ALIYUN::SLB::Rule</ResourceType>
            <ResourceType type="string">ALIYUN::SLB::VServerGroup</ResourceType>
            <ResourceType type="string">ALIYUN::SLS::ApplyConfigToMachineGroup</ResourceT
ype>
            <ResourceType type="string">ALIYUN::SLS::MachineGroup</ResourceType>
            <ResourceType type="string">ALIYUN::UIS::Uis</ResourceType>
            <ResourceType type="string">ALIYUN::UIS::UisConnection</ResourceType>
            <ResourceType type="string">ALIYUN::UIS::UisNode</ResourceType>
            <ResourceType type="string">ALIYUN::VPC::EIP</ResourceType>
            <ResourceType type="string">ALIYUN::VPC::EIPAssociation</ResourceType>
            <ResourceType type="string">ALIYUN::VPC::PeeringRouterInterfaceBinding</Resou
rceType>
            <ResourceType type="string">ALIYUN::VPC::PeeringRouterInterfaceConnection</Re
sourceType>
            <ResourceType type="string">ALIYUN::VPC::RouterInterface</ResourceType>
            <ResourceType type="string">ALIYUN::VPC::SnatEntry</ResourceType>
        </ResourceTypes>
```

```
</ListResourceTypesResponse>
```

`JSON` format

```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
   "ResourceTypes": [
       "ALIYUN::ACTIONTRAIL::Trail",
       "ALIYUN::ACTIONTRAIL::TrailLogging",
       "ALIYUN::ApiGateway::Api",
       "ALIYUN::ApiGateway::App",
       "ALIYUN::ApiGateway::Authorization",
       "ALIYUN::ApiGateway::CustomDomain",
       "ALIYUN::ApiGateway::Deployment",
       "ALIYUN::ApiGateway::Group",
       "ALIYUN::ApiGateway::Signature",
       "ALIYUN::ApiGateway::SignatureBinding",
       "ALIYUN::ApiGateway::StageConfig",
       "ALIYUN::ApiGateway::TrafficControl",
       "ALIYUN::ApiGateway::TrafficControlBinding",
       "ALIYUN::ApiGateway::VpcAccessConfig",
       "ALIYUN::BSS::WaitOrder",
       "ALIYUN::CDN::Domain",
       "ALIYUN::CDN::DomainConfig",
       "ALIYUN::CEN::CenBandwidthLimit",
       "ALIYUN::CEN::CenBandwidthPackage",
       "ALIYUN::CEN::CenBandwidthPackageAssociation",
       "ALIYUN::CEN::CenInstance",
       "ALIYUN::CEN::CenInstanceAttachment",
       "ALIYUN::CEN::RouteEntry",
       "ALIYUN::CS::App",
       "ALIYUN::CS::Cluster",
       "ALIYUN::DEBUG::Apple",
       "ALIYUN::DEBUG::Dummy",
       "ALIYUN::DEBUG::Failure",
       "ALIYUN::DEBUG::Secret",
       "ALIYUN::DEBUG::Update",
       "ALIYUN::DNS::Domain",
       "ALIYUN::DNS::DomainGroup",
       "ALIYUN::DNS::DomainRecord",
       "ALIYUN::ECS::AutoSnapshotPolicy",
       "ALIYUN::ECS::BandwidthPackage",
       "ALIYUN::ECS::Command",
       "ALIYUN::ECS::CopyImage",
       "ALIYUN::ECS::CustomImage",
       "ALIYUN::ECS::DedicatedHost",
       "ALIYUN::ECS::DeploymentSet",
       "ALIYUN::ECS::Disk",
       "ALIYUN::ECS::DiskAttachment",
       "ALIYUN::ECS::ForwardEntry",
       "ALIYUN::ECS::Instance",
       "ALIYUN::ECS::InstanceClone",
       "ALIYUN::ECS::InstanceGroup",
       "ALIYUN::ECS::InstanceGroupClone",
```

```
        "ALIYUN::ECS::Invocation",
        "ALIYUN::ECS::JoinSecurityGroup",
        "ALIYUN::ECS::LaunchTemplate",
        "ALIYUN::ECS::NatGateway",
        "ALIYUN::ECS::NetworkInterface",
        "ALIYUN::ECS::NetworkInterfaceAttachment",
        "ALIYUN::ECS::NetworkInterfacePermission",
        "ALIYUN::ECS::PrepayInstance",
        "ALIYUN::ECS::PrepayInstanceGroupClone",
        "ALIYUN::ECS::Route",
        "ALIYUN::ECS::SNatEntry",
        "ALIYUN::ECS::SSHKeyPair",
        "ALIYUN::ECS::SSHKeyPairAttachment",
        "ALIYUN::ECS::SecurityGroup",
        "ALIYUN::ECS::SecurityGroupClone",
        "ALIYUN::ECS::SecurityGroupEgress",
        "ALIYUN::ECS::SecurityGroupIngress",
        "ALIYUN::ECS::Snapshot",
        "ALIYUN::ECS::VPC",
        "ALIYUN::ECS::VSwitch",
        "ALIYUN::ESS::AlarmTask",
        "ALIYUN::ESS::AlarmTaskEnable",
        "ALIYUN::ESS::LifecycleHook",
        "ALIYUN::ESS::ScalingConfiguration",
        "ALIYUN::ESS::ScalingGroup",
        "ALIYUN::ESS::ScalingGroupEnable",
        "ALIYUN::ESS::ScalingRule",
        "ALIYUN::ESS::ScheduledTask",
        "ALIYUN::FC::Function",
        "ALIYUN::FC::FunctionInvoker",
        "ALIYUN::FC::Service",
        "ALIYUN::FC::Trigger",
        "ALIYUN::KMS::Alias",
        "ALIYUN::KMS::Key",
        "ALIYUN::MEMCACHE::Instance",
        "ALIYUN::MNS::Queue",
        "ALIYUN::MNS::Subscription",
        "ALIYUN::MNS::Topic",
        "ALIYUN::MONGODB::Instance",
        "ALIYUN::MONGODB::PrepayInstance",
        "ALIYUN::MarketPlace::Image",
        "ALIYUN::MarketPlace::Order",
        "ALIYUN::NAS::AccessGroup",
        "ALIYUN::NAS::AccessRule",
        "ALIYUN::NAS::FileSystem",
        "ALIYUN::NAS::MountTarget",
        "ALIYUN::OSS::Bucket",
        "ALIYUN::OTS::Instance",
        "ALIYUN::OTS::VpcBinder",
        "ALIYUN::PVTZ::Zone",
        "ALIYUN::PVTZ::ZoneRecord",
        "ALIYUN::PVTZ::ZoneVpcBinder",
        "ALIYUN::RAM::AccessKey",
        "ALIYUN::RAM::AttachPolicyToRole",
```

```
        "ALIYUN::RAM::Group",
        "ALIYUN::RAM::ManagedPolicy",
        "ALIYUN::RAM::Role",
        "ALIYUN::RAM::User",
        "ALIYUN::RAM::UserToGroupAddition",
        "ALIYUN::RDS::Account",
        "ALIYUN::RDS::AccountPrivilege",
        "ALIYUN::RDS::DBInstance",
        "ALIYUN::RDS::DBInstanceParameterGroup",
        "ALIYUN::RDS::DBInstanceSecurityIps",
        "ALIYUN::RDS::PrepayDBInstance",
        "ALIYUN::REDIS::Instance",
        "ALIYUN::REDIS::PrepayInstance",
        "ALIYUN::ROS::Stack",
        "ALIYUN::ROS::WaitCondition",
        "ALIYUN::ROS::WaitConditionHandle",
        "ALIYUN::SAG::ACL",
        "ALIYUN::SAG::ACLAssociation",
        "ALIYUN::SAG::ACLRule",
        "ALIYUN::SAG::CloudConnectNetwork",
        "ALIYUN::SAG::SmartAccessGatewayBinding",
        "ALIYUN::SLB::AccessControl",
        "ALIYUN::SLB::BackendServerAttachment",
        "ALIYUN::SLB::BackendServerToVServerGroupAddition",
        "ALIYUN::SLB::Certificate",
        "ALIYUN::SLB::DomainExtension",
        "ALIYUN::SLB::Listener",
        "ALIYUN::SLB::LoadBalancer",
        "ALIYUN::SLB::LoadBalancerClone",
        "ALIYUN::SLB::MasterSlaveServerGroup",
        "ALIYUN::SLB::Rule",
        "ALIYUN::SLB::VServerGroup",
        "ALIYUN::SLS::ApplyConfigToMachineGroup",
        "ALIYUN::SLS::MachineGroup",
        "ALIYUN::UIS::Uis",
        "ALIYUN::UIS::UisConnection",
        "ALIYUN::UIS::UisNode",
        "ALIYUN::VPC::EIP",
        "ALIYUN::VPC::EIPAssociation",
        "ALIYUN::VPC::PeeringRouterInterfaceBinding",
        "ALIYUN::VPC::PeeringRouterInterfaceConnection",
        "ALIYUN::VPC::RouterInterface",
        "ALIYUN::VPC::SnatEntry"
    ]
}
```

5.1.1.9. Template operations

5.1.1.9.1. GetTemplateEstimateCost

You can call this operation to query estimated prices of resources to be created based on a template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetTemplateEstimateCost	The operation that you want to perform. Set the value to GetTemplateEstimateCost.
Parameters.N.ParameterKey	String	Yes	InstanceId	The key of parameter N. If the key and value of the parameter are not specified, the key and value specified in the template are used. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
Parameters.N.ParameterValue	String	Yes	i-m5e3tfdbinchnexh****	The value of parameter N. Maximum value of N: 200. **Note** • Parameters is an optional parameter. • If you need to specify Parameters, you must specify both Parameters.N.ParameterKey and Parameters.N.ParameterValue.
RegionId	String	Yes	cn-beijing	The region ID of the stack.

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros-template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template can be up to 524,288 bytes in length, and the URL can be up to 1,024 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
TemplateBody	String	No	{"ROSTemplateFormatVersion": "2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).

Response parameters

Parameter	Type	Example	Description
Resources	Map	The parameters in the Resources section	The details about resources.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

The following table describes the parameters in the Resources section.

Parameter	Type	Example	Description
Order			Details about the order.
Currency	String	CNY	The currency unit.
DiscountAmount	Long	100	The discount.
HandlingFeeAmount	Long	0	The service fee.
OptionalMixPromotions	Array	[]	The available mixed discounts.
OptionalPromotions	Array	[]	The available discounts.
OrderLines	String		The order information.
OriginalAmount	Long	200	The original price of the service.
RiCycleAmount	Long	0	The deducted amount of money.
RuleIds	Array	[100000****]	The list of one or more IDs of the discount rules.
TaxAmount	Long	0	The amount of tax.

Parameter	Type	Example	Description
TradeAmount	Long	100	The final price after the discount.
Rules			Details about the discount rules.
Name	String	Get 15% off a 1-year subscription	The name of the discount rule.
RuleDescId	Long	100000****	The ID of the discount rule.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetTemplateEstimateCost
&RegionId=cn-beijing
&Parameters.1.ParameterKey=InstanceId
&Parameters.1.ParameterValue=i-m5e3tfdbinchnexh****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Resources>
    <NewEip>
        <Result>
            <Order>
                <Currency>CNY</Currency>
                <DiscountAmount>2.4</DiscountAmount>
                <HandlingFeeAmount>0</HandlingFeeAmount>
                <OrderLines/>
                <OriginalAmount>2.4</OriginalAmount>
                <RiCycleAmount>0</RiCycleAmount>
                <RuleIds>100000****</RuleIds>
                <TaxAmount>0</TaxAmount>
                <TradeAmount>0</TradeAmount>
            </Order>
            <Rules>
                <Rule>
                    <Name>Get 15% off a 1-year subscription</Name>
                    <RuleDescId>100000****</RuleDescId>
                </Rule>
            </Rules>
        </Result>
        <Success>true</Success>
        <Type>ALIYUN::VPC::EIP</Type>
    </NewEip>
</Resources>
<RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
```

`JSON` format

```
{
    "Resources": {
        "NewEip": {
            "Result": {
                "Order": {
                    "Currency": "CNY",
                    "DiscountAmount": 2.4,
                    "HandlingFeeAmount": 0,
                    "OptionalMixPromotions": [],
                    "OptionalPromotions": [],
                    "OrderLines": null,
                    "OriginalAmount": 2.4,
                    "RiCycleAmount": 0,
                    "RuleIds": [
                        100000****
                    ],
                    "TaxAmount": 0,
                    "TradeAmount": 0
                },
                "Rules": {
                    "Rule": [
                        {
                            "Name": "Get 15% off a 1-year subscription",
                            "RuleDescId": 100000****
                        }
                    ]
                }
            },
            "Success": true,
            "Type": "ALIYUN::VPC::EIP"
        }
    },
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```


HTTP status code	Error code	Error message	Description
400	CircularDependency	Circular Dependency Found: {reason}.	The error message returned because the template contains a circular dependency. reason indicates the specific reason.

HTTP status code	Error code	Error message	Description
400	InvalidSchema	{reason}.	The error message returned because the specified template format is invalid. reason indicates the specific reason.
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is invalid. resource indicates the resource name, and name indicates the attribute name.
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is invalid. resource indicates the resource name, and section indicates the section name.
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid property. section indicates the section name.

HTTP status code	Error code	Error message	Description
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is invalid. reason indicates the specific reason.
400	StackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
400	UnknownUserParameter	The Parameter ({name}) was not defined in template.	The error message returned because the specified parameter is not defined in the template. name indicates the parameter key.
400	UserParameterMissing	The Parameter {name} was not provided.	The error message returned because no value is passed into the specified parameter defined in the template. name indicates the parameter key.

5.1.1.9.2. ValidateTemplate

You can call this operation to validate the template that is used to create stacks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ValidateTemplate	The operation that you want to perform. Set the value to ValidateTemplate.

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros/template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template can be up to 524,288 bytes in length, and the URL can be up to 1,024 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
RegionId	String	No	cn-hangzhou	The region ID of the stack template.
TemplateBody	String	No	{"ROSTemplateFormatVersion":"2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Response parameters

Parameter	Type	Example	Description
Description	String	No description	The description of the stack template.

Parameter	Type	Example	Description
Parameters	List	[{"Description": "", "Label": "param_integer", "NoEcho": "false", "ParameterKey": "param_integer", "Type": "Number"},{ "Description": "", "Label": "param_float", "NoEcho": "false", "ParameterKey": "param_float", "Type": "Number"}]	The input parameters of the stack template. The input parameters define the parameters that you must specify to create stacks based on the template. These parameters specify information about a stack, such as the username, password, and environment-related ECS instance type.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=ValidateTemplate
&TemplateURL=oss://ros/template/demo
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ValidateTemplateResponse>
       <Description type="string">No description</Description>
       <Parameters class="array">
              <Parameter class="object">
                     <Description type="string"></Description>
                     <Label type="string">param_integer</Label>
                     <NoEcho type="string">false</NoEcho>
                     <ParameterKey type="string">param_integer</ParameterKey>
                     <Type type="string">Number</Type>
              </Parameter>
              <Parameter class="object">
                     <Description type="string"></Description>
                     <Label type="string">param_float</Label>
                     <NoEcho type="string">false</NoEcho>
                     <ParameterKey type="string">param_float</ParameterKey>
                     <Type type="string">Number</Type>
              </Parameter>
              <Parameter class="object">
                     <Description type="string"></Description>
                     <Label type="string">param_bool</Label>
                     <NoEcho type="string">false</NoEcho>
```

```
                <ParameterKey type="string">param_bool</ParameterKey>
                <Type type="string">Boolean</Type>
        </Parameter>
        <Parameter class="object">
                <Description type="string"></Description>
                <Label type="string">param_json_list</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">param_json_list</ParameterKey>
                <Type type="string">Json</Type>
        </Parameter>
        <Parameter class="object">
                <Default class="object">
                        <c class="array"></c>
                </Default>
                <Description type="string"></Description>
                <Label type="string">param_has_default</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">param_has_default</ParameterKey>
                <Type type="string">Json</Type>
        </Parameter>
        <Parameter class="object">
                <Description type="string"></Description>
                <Label type="string">UpdateVersion</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">UpdateVersion</ParameterKey>
                <Type type="string">Number</Type>
        </Parameter>
        <Parameter class="object">
                <Description type="string"></Description>
                <Label type="string">param_str</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">param_str</ParameterKey>
                <Type type="string">String</Type>
        </Parameter>
        <Parameter class="object">
                <Description type="string"></Description>
                <Label type="string">param_list</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">param_list</ParameterKey>
                <Type type="string">CommaDelimitedList</Type>
        </Parameter>
        <Parameter class="object">
                <Description type="string"></Description>
                <Label type="string">param_json_dict</Label>
                <NoEcho type="string">false</NoEcho>
                <ParameterKey type="string">param_json_dict</ParameterKey>
                <Type type="string">Json</Type>
        </Parameter>
    </Parameters>
    <RequestId type="string">B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</ValidateTemplateResponse>
```

`JSON` format

```
{
   "Description": "No description",
   "Parameters": [
       {
           "Description": "",
           "Label": "param_integer",
           "NoEcho": "false",
           "ParameterKey": "param_integer",
           "Type": "Number"
       },
       {
           "Description": "",
           "Label": "param_float",
           "NoEcho": "false",
           "ParameterKey": "param_float",
           "Type": "Number"
       },
       {
           "Description": "",
           "Label": "param_bool",
           "NoEcho": "false",
           "ParameterKey": "param_bool",
           "Type": "Boolean"
       },
       {
           "Description": "",
           "Label": "param_json_list",
           "NoEcho": "false",
           "ParameterKey": "param_json_list",
           "Type": "Json"
       },
       {
           "Default": {
               "c": []
           },
           "Description": "",
           "Label": "param_has_default",
           "NoEcho": "false",
           "ParameterKey": "param_has_default",
           "Type": "Json"
       },
       {
           "Description": "",
           "Label": "UpdateVersion",
           "NoEcho": "false",
           "ParameterKey": "UpdateVersion",
           "Type": "Number"
       },
       {
           "Description": "",
           "Label": "param_str",
           "NoEcho": "false",
           "ParameterKey": "param_str",
           "Type": "String"
```

```
        },
        {
            "Description": "",
            "Label": "param_list",
            "NoEcho": "false",
            "ParameterKey": "param_list",
            "Type": "CommaDelimitedList"
        },
        {
            "Description": "",
            "Label": "param_json_dict",
            "NoEcho": "false",
            "ParameterKey": "param_json_dict",
            "Type": "Json"
        }
    ],
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```


Error code	Error message	HTTP status code	Description
InvalidTemplate	{reason}.	400	The error message returned because the specified template is invalid. reason indicates the specific reason.

5.1.1.9.3. GetTemplate

You can call this operation to query details about a template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetTemplate	The operation that you want to perform. Set the value to GetTemplate.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	No	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
ChangeSetId	String	No	1f6521a4-05af-4975-afe9-bc4b45ad****	The ID of the change set.

Parameter	Type	Required	Example	Description
TemplateId	String	No	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the template.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
TemplateBody	String	{\"ROSTemplateFormatVersion\": \"2015-09-01\"}	The structure that contains the template body.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetTemplate
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetTemplateResponse>
        <TemplateBody>{"ROSTemplateFormatVersion": "2015-09-01", "Resources": {"dummy2": {"
Type": "ALIYUN::DEBUG::Dummy", "Properties": {"Map": {"Ref": "param_has_default"}, "List":
{"Ref": "param_list"}}}, "dummy": {"Type": "ALIYUN::DEBUG::Dummy", "Properties": {"Map": {"
Ref": "param_json_dict"}, "String": {"Ref": "param_str"}, "List": {"Ref": "param_json_list"
}, "Number": {"Ref": "param_float"}, "Bool": {"Ref": "param_bool"}, "Integer": {"Ref": "par
am_integer"}}}, "nested": {"Type": "ALIYUN::ROS::Stack", "Properties": {"TemplateURL": "oss
://nested-stack/simple/nested_demo", "TimeoutMins": 16}}, "WaitConditionHandle": {"Type": "
ALIYUN::ROS::WaitConditionHandle", "Properties": {"UpdateVersion": {"Ref": "UpdateVersion"}
}}}, "Parameters": {"param_integer": {"Type": "Number"}, "param_float": {"Type": "Number"},
"param_bool": {"Type": "Boolean"}, "param_json_list": {"Type": "Json"}, "param_has_default"
: {"Default": "{\"c\": []}", "Type": "Json"}, "UpdateVersion": {"Type": "Number"}, "param_s
tr": {"Type": "String"}, "param_list": {"Type": "CommaDelimitedList"}, "param_json_dict": {
"Type": "Json"}}, "Outputs": {"param_integer": {"Value": {"Ref": "param_integer"}}, "param_
float": {"Value": {"Ref": "param_float"}}, "param_bool": {"Value": {"Ref": "param_bool"}},
"param_json_list": {"Value": {"Ref": "param_json_list"}}, "param_has_default": {"Value": {"
Ref": "param_has_default"}}, "param_str": {"Value": {"Ref": "param_str"}}, "CurlCli": {"Val
ue": {"Fn::GetAtt": ["WaitConditionHandle", "CurlCli"]}}, "param_list": {"Value": {"Ref": "
param_list"}}, "param_json_dict": {"Value": {"Ref": "param_json_dict"}}}}</TemplateBody>
        <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</GetTemplateResponse>
```

`JSON` format


```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F",
   "TemplateBody": "{\"ROSTemplateFormatVersion\": \"2015-09-01\", \"Resources\": {\"dummy2\": {\"Type\": \"ALIYUN::DEBUG::Dummy\", \"Properties\": {\"Map\": {\"Ref\": \"param_has_default\"}, \"List\": {\"Ref\": \"param_list\"}}}, \"dummy\": {\"Type\": \"ALIYUN::DEBUG::Dummy\", \"Properties\": {\"Map\": {\"Ref\": \"param_json_dict\"}, \"String\": {\"Ref\": \"param_str\"}, \"List\": {\"Ref\": \"param_json_list\"}, \"Number\": {\"Ref\": \"param_float\"}, \"Bool\": {\"Ref\": \"param_bool\"}, \"Integer\": {\"Ref\": \"param_integer\"}}}, \"nested\": {\"Type\": \"ALIYUN::ROS::Stack\", \"Properties\": {\"TemplateURL\": \"oss://nested-stack/simple/nested_demo\", \"TimeoutMins\": 16}}, \"WaitConditionHandle\": {\"Type\": \"ALIYUN::ROS::WaitConditionHandle\", \"Properties\": {\"UpdateVersion\": {\"Ref\": \"UpdateVersion\"}}}}, \"Parameters\": {\"param_integer\": {\"Type\": \"Number\"}, \"param_float\": {\"Type\": \"Number\"}, \"param_bool\": {\"Type\": \"Boolean\"}, \"param_json_list\": {\"Type\": \"Json\"}, \"param_has_default\": {\"Default\": \"{\\\"c\\\": []}\", \"Type\": \"Json\"}, \"UpdateVersion\": {\"Type\": \"Number\"}, \"param_str\": {\"Type\": \"String\"}, \"param_list\": {\"Type\": \"CommaDelimitedList\"}, \"param_json_dict\": {\"Type\": \"Json\"}}, \"Outputs\": {\"param_integer\": {\"Value\": {\"Ref\": \"param_integer\"}}, \"param_float\": {\"Value\": {\"Ref\": \"param_float\"}}, \"param_bool\": {\"Value\": {\"Ref\": \"param_bool\"}}, \"param_json_list\": {\"Value\": {\"Ref\": \"param_json_list\"}}, \"param_has_default\": {\"Value\": {\"Ref\": \"param_has_default\"}}, \"param_str\": {\"Value\": {\"Ref\": \"param_str\"}}, \"CurlCli\": {\"Value\": {\"Fn::GetAtt\": [\"WaitConditionHandle\", \"CurlCli\"]}}, \"param_list\": {\"Value\": {\"Ref\": \"param_list\"}}, \"param_json_dict\": {\"Value\": {\"Ref\": \"param_json_dict\"}}}}"
}
```


HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.
404	TemplateNotFound	The Tempalte ({ ID }) could not be found.	The error message returned because the specified template does not exist. ID indicates the template ID.

5.1.1.9.4. DeleteTemplate

You can call this operation to delete a stack and all of its resources.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteTemplate	The operation that you want to perform. Set the value to DeleteTemplate.
TemplateId	String	Yes	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the stack.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8C5D90E1-66B6-496C-9371-3807F8DA80A8	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=DeleteTemplate
&TemplateId=5ecd1e10-b0e9-4389-a565-e4c15efc****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteTemplateResponse>
          <RequestId>8C5D90E1-66B6-496C-9371-3807F8DA80A8</RequestId>
</DeleteTemplateResponse>
```

`JSON` format

```
{
    "RequestId": "8C5D90E1-66B6-496C-9371-3807F8DA80A8"
}
```

HTTP status code	Error code	Error message	Description
404	TemplateNotFound	The Tempalte ({ ID }) could not be found.	The error message returned because the specified stack does not exist.

5.1.1.9.5. ListTemplates

You can call this operation to query the list of one or more templates.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListTemplates	The operation that you want to perform. Set the value to ListTemplates.
TemplateName	String	No	MyTemplate	The name of the template. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.
PageNumber	Long	No	10	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Long	No	1	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.
Tag.N.Key	String	No	TestKey	The key of tag N. Valid values of N: 1 to 20. The tag key cannot be an empty string. The tag key can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	TestValue	The value of tag N. Valid values of N: 1 to 20. The tag value can be an empty string. The tag value can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C3A8413B-1F16-4DED-AC3E-61A00718DE8A	The ID of the request.
PageSize	Integer	10	The number of entries returned per page.
PageNumber	Integer	1	The page number of the returned page. Pages start from page 1.
TotalCount	Integer	3	The total number of templates.
Templates	Array of Template		Details about the templates.
CreateTime	String	2019-10-15T08:17:14.000000	The time when the template was created.
Description	String	test-description	The description of the template.
TemplateId	String	4d4f5aa2-3260-4e47-863b-763fbb12****	The ID of the template.
TemplateName	String	test-list-templates	The name of the template.
UpdateTime	String	2019-10-15T08:17:14.000000	The time when the template was created.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=ListTemplates
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListTemplatesResponse>
    <PageNumber>1</PageNumber>
    <PageSize>10</PageSize>
    <RequestId>C3A8413B-1F16-4DED-AC3E-61A00718DE8A</RequestId>
    <Templates>
       <CreateTime>2019-10-15T08:17:15.000000</CreateTime>
       <Description>test-description-update</Description>
       <TemplateId>c8b8bd07-c488-4302-ac15-b88ef073****</TemplateId>
       <TemplateName>test-template-name-update</TemplateName>
       <UpdateTime>2019-10-15T08:17:15.000000</UpdateTime>
    </Templates>
    <Templates>
       <CreateTime>2019-10-15T08:17:15.000000</CreateTime>
       <Description>test-description</Description>
       <TemplateId>4d4f5aa2-3260-4e47-863b-763fbb12****</TemplateId>
       <TemplateName>test-list-templates-2</TemplateName>
       <UpdateTime>2019-10-15T08:17:15.000000</UpdateTime>
    </Templates>
    <Templates>
       <CreateTime>2019-10-15T08:17:14.000000</CreateTime>
       <Description>test-description</Description>
       <TemplateId>1e808bb6-c2d1-4196-98a3-3b2cb2a4****</TemplateId>
       <TemplateName>test-list-templates-1</TemplateName>
       <UpdateTime>2019-10-15T08:17:14.000000</UpdateTime>
    </Templates>
    <TotalCount>3</TotalCount>
</ListTemplatesResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "PageSize": 10,
    "RequestId": "C3A8413B-1F16-4DED-AC3E-61A00718DE8A",
    "Templates": [
        {
            "CreateTime": "2019-10-15T08:17:15.000000",
            "Description": "test-description-update",
            "TemplateId": "c8b8bd07-c488-4302-ac15-b88ef073****",
            "TemplateName": "test-template-name-update",
            "UpdateTime": "2019-10-15T08:17:15.000000"
        },
        {
            "CreateTime": "2019-10-15T08:17:15.000000",
            "Description": "test-description",
            "TemplateId": "4d4f5aa2-3260-4e47-863b-763fbb12****",
            "TemplateName": "test-list-templates-2",
            "UpdateTime": "2019-10-15T08:17:15.000000"
        },
        {
            "CreateTime": "2019-10-15T08:17:14.000000",
            "Description": "test-description",
            "TemplateId": "1e808bb6-c2d1-4196-98a3-3b2cb2a4****",
            "TemplateName": "test-list-templates-1",
            "UpdateTime": "2019-10-15T08:17:14.000000"
        }
    ],
    "TotalCount": 3
}
```


5.1.1.9.6. CreateTemplate

You can call this operation to create a template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateTemplate	The operation that you want to perform. Set the value to CreateTemplate.
TemplateName	String	Yes	MyTemplate	The name of the template. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros/template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template can be up to 524,288 bytes in length, and the URL can be up to 1,024 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You can specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
Description	String	No	It is a demo.	The description of the template. The description can be up to 256 characters in length.
TemplateBody	String	No	{"ROSTemplateFormatVersion":"2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8C5D90E1-66B6-496C-9371-3807F8DA80A8	The ID of the request.
TemplateId	String	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the template.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=CreateTemplate
&TemplateName=MyTemplate
&TemplateURL=oss://ros/template/demo
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateTemplateResponse>
          <RequestId>8C5D90E1-66B6-496C-9371-3807F8DA80A8</RequestId>
          <TemplateId>5ecd1e10-b0e9-4389-a565-e4c15efc****</TemplateId>
</CreateTemplateResponse>
```

`JSON` format

```
{
    "RequestId": "8C5D90E1-66B6-496C-9371-3807F8DA80A8",
    "TemplateId": "5ecd1e10-b0e9-4389-a565-e4c15efc****"
}
```

HTTP status code	Error code	Error message	Description
400	InvalidSchema	{reason}.	The error message returned because the specified template format is invalid. reason indicates the specific reason.

HTTP status code	Error code	Error message	Description
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is incorrect. resource indicates the resource name, and name indicates the attribute name.
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is incorrect. resource indicates the resource name, and section indicates the section name.
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid property. section indicates the section name.
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is incorrect. reason indicates the specific reason.

5.1.1.9.7. UpdateTemplate

You can call this operation to update a template.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateTemplate	The operation that you want to perform. Set the value to UpdateTemplate.
TemplateId	String	Yes	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the template.
TemplateURL	String	No	oss://ros/template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template can be up to 524,288 bytes in length, and the URL can be up to 1,024 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
TemplateName	String	No	MyTemplate	The name of the template. The name can be up to 255 characters in length and can contain digits, letters, hyphens (-), and underscores (_). It must start with a digit or letter.
Description	String	No	It is a demo.	The description of the template. The description can be up to 256 characters in length.

Parameter	Type	Required	Example	Description
TemplateBody	String	No	{"ROSTemplateFormatVersion":"2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8C5D90E1-66B6-496C-9371-3807F8DA80A8	The ID of the request.
TemplateId	String	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the template.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=UpdateTemplate
&TemplateId=5ecd1e10-b0e9-4389-a565-e4c15efc****
&TemplateURL=oss://ros/template/demo
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpdateTemplateResponse>
          <RequestId>8C5D90E1-66B6-496C-9371-3807F8DA80A8</RequestId>
          <TemplateId>5ecd1e10-b0e9-4389-a565-e4c15efc****</TemplateId>
</UpdateTemplateResponse>
```

`JSON` format

```
{
    "RequestId": "8C5D90E1-66B6-496C-9371-3807F8DA80A8",
    "TemplateId": "5ecd1e10-b0e9-4389-a565-e4c15efc****"
}
```

HTTP status code	Error code	Error message	Description
404	TemplateNotFound	The Tempalte ({ ID }) could not be found.	The error message returned because the specified template does not exist.
400	InvalidSchema	{reason}.	The error message returned because the specified template format is invalid. reason indicates the specific reason.
400	InvalidTemplateAttribute	The Referenced Attribute ({resource} {name}) is incorrect.	The error message returned because the resource attribute referenced in the template is invalid. resource indicates the resource name, and name indicates the attribute name.
400	InvalidTemplatePropertyType	The specified value type of ({resource} {section}) is incorrect.	The error message returned because the type of the specified resource section defined in the template is invalid. resource indicates the resource name, and section indicates the section name.

HTTP status code	Error code	Error message	Description
400	InvalidTemplateReference	The specified reference "{name}" (in {referencer}) is incorrect.	The error message returned because the template contains an invalid reference. name indicates the reference name, and referencer indicates the referencer name.
400	InvalidTemplateSection	The template section is invalid: {section}.	The error message returned because the template contains an invalid property. section indicates the section name.
400	InvalidTemplateVersion	The template version is invalid: {reason}.	The error message returned because the template version is invalid. reason indicates the specific reason.

5.1.1.9.8. GetTemplateSummary

You can call this operation to query information about a new or existing template.

To specify the query object, you must specify one of the StackId, ChangeSetId, TemplateId, TemplateBody, and TemplateURL parameters.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetTemplateSummary	The operation that you want to perform. Set the value to GetTemplateSummary.
StackId	String	No	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Parameter	Type	Required	Example	Description
TemplateBody	String	No	{"ROSTemplateFormatVersion":"2015-09-01"}	The structure that contains the template body. The template body must be 1 to 524,288 bytes in length. If the length of the template body is longer than required, we recommend that you add parameters to the HTTP POST request body to avoid request failures due to excessive length of URLs. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
RegionId	String	No	cn-hangzhou	The region ID of the stack.
TemplateId	String	No	5ecd1e10-b0e9-4389-a565-e4c15efc****	The ID of the template.

Parameter	Type	Required	Example	Description
TemplateURL	String	No	oss://ros/template/demo	The URL of the file that contains the template body. The URL must point to a template located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/template/demo and oss://ros/template/demo?RegionId=cn-hangzhou. The template can be up to 524,288 bytes in length, and the URL can be up to 1,024 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the TemplateBody and TemplateURL parameters, but you cannot specify both of them.
ChangeSetId	String	No	1f6521a4-05af-4975-afe9-bc4b45ad****	The ID of the change set.

Response parameters

Parameter	Type	Example	Description
Description	String	No description	The description of the stack template.
Metadata	Map	{"key": "value"}	The metadata that is specified in the template.
Parameters	List	[{"Description":"", "Label":"Name", "NoEcho":"false", "ParameterKey":"Name", "Type":"String"}]	Details about the parameter declarations that describe the attributes of parameters.

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.
ResourceIdentifierSummaries	Array of ResourceIdentifierSummary		Details about the resource identifier summaries. A summary describes the resource into which you want to import other resources and the attributes that can be used to identify the resource. For example, VpcId is the identifier of the ALIYUN::ECS::VPC resource.
LogicalResourceIds	List	["Vpc"]	The logical IDs of all resources that are of the type that is specified by the ResourceType parameter.
ResourceIdentifiers	List	["VpcId"]	The attributes of the resource. The attributes are used to identify the resource into which you want to import other resources. For example, VpcId is the identifier of the ALIYUN::ECS::VPC resource.
ResourceType	String	ALIYUN::ECS::VPC	The type of the resource. **Note** You can import resources into the ALIYUN::ECS::VPC resource type.
ResourceTypes	List	["ALIYUN::ECS::VPC"]	All the resource types that are used in the template.
Version	String	2015-09-01	The version of the template.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetTemplateSummary
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&RegionId=cn-hangzhou
&TemplateURL=oss://ros/template/demo
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetTemplateSummary>
          <Description>No description</Description>
          <Metadata></Metadata>
          <Parameters>
                <Description>Description of the vpc, [2, 256] characters. Do not fill or em
pty, the default is empty. </Description>
                <Label>Description</Label>
                <NoEcho>false</NoEcho>
                <ParameterKey>Description</ParameterKey>
                <Type>String</Type>
          </Parameters>
          <Parameters>
                <Description>Tags to attach to vpc. Max support 20 tags to add during creat
e vpc. Each tag with two properties Key and Value, and Key is required. </Description>
                <Label>Tags</Label>
                <MaxLength>20</MaxLength>
                <NoEcho>false</NoEcho>
                <ParameterKey>Tags</ParameterKey>
                <Type>Json</Type>
          </Parameters>
          <Parameters>
                <Description>IPv6 network cidr of the VPC. </Description>
                <Label>Ipv6CidrBlock</Label>
                <MinLength>1</MinLength>
                <NoEcho>false</NoEcho>
                <ParameterKey>Ipv6CidrBlock</ParameterKey>
                <Type>String</Type>
          </Parameters>
          <Parameters>
                <AllowedValues>True</AllowedValues>
                <AllowedValues>true</AllowedValues>
                <AllowedValues>False</AllowedValues>
                <AllowedValues>false</AllowedValues>
                <Default>false</Default>
                <Description>Whether to enable an IPv6 network cidr, the value is:False (de
fault): not turned on.True: On. </Description>
                <Label>EnableIpv6</Label>
                <NoEcho>false</NoEcho>
                <ParameterKey>EnableIpv6</ParameterKey>
                <Type>Boolean</Type>
          </Parameters>
          <Parameters>
                <Description>Resource group id. </Description>
                <Label>ResourceGroupId</Label>
                <NoEcho>false</NoEcho>
                <ParameterKey>ResourceGroupId</ParameterKey>
                <Type>String</Type>
          </Parameters>
          <Parameters>
                <Description>Display name of the vpc instance, [2, 128] English or Chinese
characters, must start with a letter or Chinese in size, can contain numbers, ' ' or '.', '
```

```
-'</Description>
                <Label>VpcName</Label>
                <NoEcho>false</NoEcho>
                <ParameterKey>VpcName</ParameterKey>
                <Type>String</Type>
          </Parameters>
          <Parameters>
                <Description>
                The IP address range of the VPC in the CIDR block form. You can use the fol
lowing IP address ranges and their subnets:
                10.0.0.0/8
                172.16.0.0/12 (Default)
                192.168.0.0/16</Description>
                <Label>CidrBlock</Label>
                <NoEcho>false</NoEcho>
                <ParameterKey>CidrBlock</ParameterKey>
                <Type>String</Type>
          </Parameters>
          <RequestId>FD70598C-3F4B-4E66-9A76-67F2E2D36938</RequestId>
          <ResourceIdentifierSummaries>
                <LogicalResourceIds>Vpc</LogicalResourceIds>
                <ResourceIdentifiers>VpcId</ResourceIdentifiers>
                <ResourceType>ALIYUN::ECS::VPC</ResourceType>
          </ResourceIdentifierSummaries>
          <ResourceTypes>ALIYUN::ECS::VPC</ResourceTypes>
          <Version>2015-09-01</Version>
</GetTemplateSummary>
```

`JSON` format

```
{
    "Description": "No description",
    "Metadata": {},
    "Parameters": [
        {
            "Description": "Description of the vpc, [2, 256] characters. Do not fill or emp
ty, the default is empty.",
            "Label": "Description",
            "NoEcho": "false",
            "ParameterKey": "Description",
            "Type": "String"
        },
        {
            "Description": "Tags to attach to vpc. Max support 20 tags to add during create
vpc. Each tag with two properties Key and Value, and Key is required.",
            "Label": "Tags",
            "MaxLength": 20,
            "NoEcho": "false",
            "ParameterKey": "Tags",
            "Type": "Json"
        },
        {
            "Description": "IPv6 network cidr of the VPC.",
```

```
            "Label": "Ipv6CidrBlock",
            "MinLength": 1,
            "NoEcho": "false",
            "ParameterKey": "Ipv6CidrBlock",
            "Type": "String"
        },
        {
            "AllowedValues": [
                "True",
                "true",
                "False",
                "false"
            ],
            "Default": false,
            "Description": "Whether to enable an IPv6 network cidr, the value is:False (def
ault): not turned on.True: On.",
            "Label": "EnableIpv6",
            "NoEcho": "false",
            "ParameterKey": "EnableIpv6",
            "Type": "Boolean"
        },
        {
            "Description": "Resource group id.",
            "Label": "ResourceGroupId",
            "NoEcho": "false",
            "ParameterKey": "ResourceGroupId",
            "Type": "String"
        },
        {
            "Description": "Display name of the vpc instance, [2, 128] English or Chinese c
haracters, must start with a letter or Chinese in size, can contain numbers, '_' or '.', '-
'",
            "Label": "VpcName",
            "NoEcho": "false",
            "ParameterKey": "VpcName",
            "Type": "String"
        },
        {
            "Description": "The IP address range of the VPC in the CIDR block form. You can
use the following IP address ranges and their subnets:\n10.0.0.0/8\n172.16.0.0/12 (Default)
\n192.168.0.0/16",
            "Label": "CidrBlock",
            "NoEcho": "false",
            "ParameterKey": "CidrBlock",
            "Type": "String"
        }
    ],
    "RequestId": "FD70598C-3F4B-4E66-9A76-67F2E2D36938",
    "ResourceIdentifierSummaries": [
        {
            "LogicalResourceIds": [
                "Vpc"
            ],
            "ResourceIdentifiers": [
                "VpcId"
```

```
                    VpcId
                ],
                "ResourceType": "ALIYUN::ECS::VPC"
            }
        ],
        "ResourceTypes": [
            "ALIYUN::ECS::VPC"
        ],
        "Version": "2015-09-01"
}
```

HTTP status code	Error code	Error message	Description
400	StackValidationFailed	{reason}.	The error message returned because the stack validation failed. reason indicates the specific reason.
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.
404	TemplateNotFound	The Tempalte ({ ID }) could not be found.	The error message returned because the specified template does not exist. ID indicates the template ID.

5.1.1.10. Stack policy operations

5.1.1.10.1. SetStackPolicy

You can call this operation to set a stack policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetStackPolicy	The operation that you want to perform. Set the value to SetStackPolicy.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
StackPolicyBody	String	No	{"Statement":[{"Effect":"Allow","Action":"Update:*","Principal":"*","Resource":"*"}]}	The structure that contains the stack policy body. The stack policy body must be 1 to 16,384 bytes in length. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.
StackPolicyURL	String	No	oss://ros/stack-policy/demo	The URL of the file that contains the stack policy. The URL must point to a policy located in an HTTP or HTTPS web server or an Alibaba Cloud OSS bucket. Examples: oss://ros/stack-policy/demo and oss://ros/stack-policy/demo?RegionId=cn-hangzhou. The policy can be up to 16,384 bytes in length and the URL can be up to 1,350 bytes in length. If the region of the OSS bucket is not specified, the RegionId value is used. **Note** You must specify one of the StackPolicyBody and StackPolicyURL parameters, but you cannot specify both of them.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=SetStackPolicy
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&StackPolicyURL=oss://ros/stack-policy/demo
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetStackPolicyResponse>
      <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</SetStackPolicyResponse>
```

`JSON` format

```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

Error code	Error message	HTTP status code	Description
StackValidationFailed	{reason}.	400	The error message returned because the stack validation failed. reason indicates the specific reason.
StackNotFound	The Stack ({name}) could not be found.	404	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.10.2. GetStackPolicy

You can call this operation to query information about a stack policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetStackPolicy	The operation that you want to perform. Set the value to GetStackPolicy.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.

Response parameters

Parameter	Type	Example	Description
StackPolicyBody	Map	{"Statement": [{"Action": "Update:*", "Effect": "Allow","Principal": "*","Resource": "*"}]}	The structure that contains the stack policy body. The policy body must be 1 to 16,384 bytes in length.
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=GetStackPolicy
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetStackPolicyResponse>
    <StackPolicyBody>
        <Statement>
            <Statement>
                <Resource>*</Resource>
                <Principal>*</Principal>
                <Action>Update:*</Action>
                <Effect>Allow</Effect>
            </Statement>
            <Statement>
                <Resource>LogicalResourceId/WebServer</Resource>
                <Principal>*</Principal>
                <Action>Update:*</Action>
                <Effect>Deny</Effect>
            </Statement>
        </Statement>
    </StackPolicyBody>
    <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</GetStackPolicyResponse>
```

`JSON` format

```
{
  "StackPolicyBody": {
    "Statement": [
      {
        "Action": "Update:*",
        "Effect": "Allow",
        "Principal": "*",
        "Resource": "*"
      },
      {
        "Action": "Update:*",
        "Effect": "Deny",
        "Principal": "*",
        "Resource": "LogicalResourceId/WebServer"
      }
    ]
  },
  "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

Error code	Error message	HTTP status code	Description
StackNotFound	The Stack ({name}) could not be found.	404	The error message returned because the specified stack could not be found. name indicates the name or ID of the stack.

5.1.1.11. Other operations

5.1.1.11.1. DescribeRegions

You can call this operation to query available regions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to DescribeRegions.
AcceptLanguage	String	No	zh-CN	The natural language that is used to filter responses. Default value: zh-CN. Valid values: • zh-CN • en-US • ja

Response parameters

Parameter	Type	Example	Description
Regions	Array of Region		Details about the regions.
LocalName	String	China (Hangzhou)	The name of the region in the local language.
RegionEndpoint	String	ros.aliyuncs.com	The endpoint of the region.
RegionId	String	cn-hangzhou	The ID of the region.
RequestId	String	59F0F0A0-A637-4292-9B91-251EF5010913	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=DescribeRegions
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRegionsResponse>
    <Regions>
        <Region>
            <RegionId>cn-qingdao</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Qingdao)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-beijing</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Beijing)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-zhangjiakou</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Zhangjiakou)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-huhehaote</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Hohhot)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-hangzhou</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Hangzhou)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-shanghai</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Shanghai)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-shenzhen</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Shenzhen)</LocalName>
        </Region>
        <Region>
            <RegionId>cn-chengdu</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>China (Chengdu)</LocalName>
        </Region>
        <Region>
            <RegionId>ap-northeast-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Japan (Tokyo)</LocalName>
        </Region>
        <Region>
            <RegionId>ap-southeast-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Singapore (Singapore)</LocalName>
```

```
        </Region>
        <Region>
            <RegionId>ap-southeast-2</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Australia (Sydney)</LocalName>
        </Region>
        <Region>
            <RegionId>ap-southeast-3</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Malaysia (Kuala Lumpur)</LocalName>
        </Region>
        <Region>
            <RegionId>ap-southeast-5</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Indonesia (Jakarta)</LocalName>
        </Region>
        <Region>
            <RegionId>ap-south-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>India (Mumbai)</LocalName>
        </Region>
        <Region>
            <RegionId>us-east-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>US (Virginia)</LocalName>
        </Region>
        <Region>
            <RegionId>us-west-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>US (Silicon Valley)</LocalName>
        </Region>
        <Region>
            <RegionId>eu-west-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>UK (London)</LocalName>
        </Region>
        <Region>
            <RegionId>me-east-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>UAE (Dubai)</LocalName>
        </Region>
        <Region>
            <RegionId>eu-central-1</RegionId>
            <RegionEndpoint>ros.aliyuncs.com</RegionEndpoint>
            <LocalName>Germany (Frankfurt)</LocalName>
        </Region>
    </Regions>
    <RequestId>59F0F0A0-A637-4292-9B91-251EF5010913</RequestId>
</DescribeRegionsResponse>
```

`JSON` format

```
{
```

```
    "Regions": [
        {
            "LocalName": "China (Qingdao)"
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-qingdao"
        },
        {
            "localName": "China (Beijing)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-beijing"
        },
        {
            "localName": "China (Zhangjiakou)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-zhangjiakou"
        },
        {
            "localName": "China (Hohhot)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-huhehaote"
        },
        {
            "localName": "China (Hangzhou)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-hangzhou"
        },
        {
            "localName": "China (Shanghai)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-shanghai"
        },
        {
            "localName": "China (Shenzhen)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-shenzhen"
        },
        {
            "LocalName": "China (Chengdu)"
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "cn-chengdu"
        },
        {
            "localName": "Japan (Tokyo)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-northeast-1"
        },
        {
            "localName": "Singapore (Singapore)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-southeast-1"
        },
        {
            "localName": "Australia (Sydney)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-southeast-2"
```

```
            "RegionId": "ap-southeast-2"
        },
        {
            "localName": "Malaysia (Kuala Lumpur)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-southeast-3"
        },
        {
            "localName": "Indonesia (Jakarta)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-southeast-5"
        },
        {
            "localName": "India (Mumbai)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "ap-south-1"
        },
        {
            "localName": "US (Virginia)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "us-east-1"
        },
        {
            "localName": "US (Silicon Valley)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "us-west-1"
        },
        {
            "localName": "UK (London)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "eu-west-1"
        },
        {
            "localName": "UAE (Dubai)",
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "me-east-1"
        },
        {
            "LocalName": "Germany (Frankfurt)"
            "RegionEndpoint": "ros.aliyuncs.com",
            "RegionId": "eu-central-1"
        }
    ],
    "RequestId": "59F0F0A0-A637-4292-9B91-251EF5010913"
}
```


5.1.1.11.2. SignalResource

You can call this operation to send signals.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SignalResource	The operation that you want to perform. Set the value to SignalResource.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
LogicalResourceId	String	Yes	WebServer	The logical ID of the resource as defined in the template.
Status	String	Yes	SUCCESS	The state of the signal. Failure signals can cause stack creation or update to fail. If all signals are warnings, the stack cannot be created or updated. Valid values: • SUCCESS • FAILURE • WARNING
UniqueId	String	Yes	27c7347b-352a-4377-accf-63d361c1****	The unique ID of the signal. The ID must be 1 to 64 characters in length. If multiple signals are sent to a single resource, each signal must have a unique ID.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-) and underscores (_).

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=SignalResource
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&LogicalResourceId=WebServer
&Status=SUCCESS
&UniqueId=27c7347b-352a-4377-accf-63d361c1****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SignalResourceResponse>
      <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</SignalResourceResponse>
```

`JSON` format

```
{
   "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

HTTP status code	Error code	Error message	Description
404	ResourceNotAvailable	The Resource ({name}) is not available.	The error message returned because the specified resource is unavailable. name indicates the resource name.
404	ResourceNotFound	The Resource ({name}) could not be found in Stack {stack}.	The error message returned because the specified resource does not exist in the specified stack. name indicates the resource name, and stack indicates the stack name or ID.

HTTP status code	Error code	Error message	Description
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. The name parameter indicates the name or ID of the stack.

5.1.1.11.3. SetDeletionProtection

You can call this operation to configure deletion protection on a stack.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetDeletionProtection	The operation that you want to perform. Set the value to SetDeletionProtection.
DeletionProtection	String	Yes	Enabled	Specifies whether to enable deletion protection on the stack. Default value: Disabled. Valid values: • Enabled: enables deletion protection on the stack. • Disabled: disables deletion protection on the stack. You can release the stack by using the ROS console or by calling the DeleteStack operation. Note The deletion protection property of a nested stack is the same as that of its root stack.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack. The deletion protection property of a nested stack is the same as that of its parent stack and cannot be changed.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B288A0BE-D927-4888-B0F7-B35EF84B6E6F	The ID of the request.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=SetDeletionProtection
&DeletionProtection=Enabled
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetDeletionProtectionResponse>
    <RequestId>B288A0BE-D927-4888-B0F7-B35EF84B6E6F</RequestId>
</SetDeletionProtectionResponse>
```

`JSON` format

```
{
    "RequestId": "B288A0BE-D927-4888-B0F7-B35EF84B6E6F"
}
```

HTTP status code	Error code	Error message	Description

HTTP status code	Error code	Error message	Description
400	InvalidOperation.SetDeletionProtection	Fail to set deletion protection for {type} {ID}, {reason}.	The error message returned because deletion protection failed to be enabled for a stack. type indicates the type of the object on which to perform the operation. ID indicates the ID of the object on which to perform the operation. reason indicates the specific reason.
404	StackNotFound	The Stack ({name}) could not be found.	The error message returned because the specified stack does not exist. name indicates the name or ID of the stack.

5.1.1.11.4. ListStackOperationRisks

You can call this operation to detect the resources that may face high risks caused by a stack deletion operation, and query the reason for each risk.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListStackOperationRisks	The operation that you want to perform. Set the value to ListStackOperationRisks.
OperationType	String	Yes	DeleteStack	The operation type to be detected. The DeleteStack value specifies to detect resources that may face high risks caused by a stack deletion operation.
RegionId	String	Yes	cn-hangzhou	The region ID of the stack.

Parameter	Type	Required	Example	Description
StackId	String	Yes	4a6c9851-3b0f-4f5f-b4ca-a14bf691****	The ID of the stack.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can be up to 64 characters in length and can contain letters, digits, hyphens (-), and underscores (_).
RamRoleName	String	No	test-role	The name of the RAM role. • If you specify a RAM role, ROS creates stacks based on the permissions granted to the RAM role and uses the credentials of the RAM role to call API operations. • If you do not specify a RAM role, ROS creates stacks based on the permissions of the current account. The RAM role name can be up to 64 characters in length.
RetainAllResources	Boolean	No	false	Specifies whether to retain all resources in the stack. Default value: false. Valid values: • true: The resources in the stack are retained. • false: The resources in the stack are not retained. Note This parameter is valid only when the OperationType parameter is set to DeleteStack.
RetainResources.N	RepeatList	No	WebServer	The list of resources to retain. Note This parameter is valid only when the OperationType parameter is set to DeleteStack.

Response parameters

Parameter	Type	Example	Description
RequestId	String	72108E7A-E874-4A5E-B22C-A61E94AD12CD	The ID of the request.
RiskResources	Array of Resource		The resources that face high risks caused by the stack deletion operation.
Code	String	NoPermission	The error code that is returned when the risk detection fails. This parameter is not returned when the risk detection succeeds.
LogicalResourceId	String	MySG	The logical ID of the resource. It is the resource name defined in the template.
Message	String	You are not authorized to complete this action.	The error message that is returned when the risk detection fails. This parameter is not returned when the risk detection succeeds.
PhysicalResourceId	String	sg-bp1dpioafqphedg9****	The physical ID of the resource.
Reason	String	There are some ECS instances (i-bp18el96s4wq635e****) depending on the security group.	The reason for the risk.
RequestId	String	DF4296CF-F45F-4845-A72B-BE617601DB25	The request ID that is returned when the risk detection fails. This parameter is not returned when the risk detection succeeds.
ResourceType	String	ALIYUN::ECS::SecurityGroup	The type of the resource.
RiskType	String	Referenced	The type of the risk. Valid values: • Referenced: The current resource is referenced by other resources. • MaybeReferenced: The current resource may be referenced by other resources. • AdditionalRiskCheckRequired: An additional risk detection is required for nested stacks.

Examples

Sample requests

```
http(s)://ros.aliyuncs.com/? Action=ListStackOperationRisks
&OperationType=DeleteStack
&RegionId=cn-hangzhou
&StackId=4a6c9851-3b0f-4f5f-b4ca-a14bf691****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListStackOperationRisks>
    <RequestId>72108E7A-E874-4A5E-B22C-A61E94AD12CD</RequestId>
    <RiskResources>
       <LogicalResourceId>MySG</LogicalResourceId>
       <PhysicalResourceId>sg-bp1dpioafqphedg9****</PhysicalResourceId>
       <ResourceType>ALIYUN::ECS::SecurityGroup</ResourceType>
       <Reason>There are some ECS instances (i-bp18el96s4wq635e****) depending on the secur
ity group. </Reason>
       <RiskType>Referenced</RiskType>
    </RiskResources>
</ListStackOperationRisks>
```

`JSON` format

```
{
  "RequestId": "772108E7A-E874-4A5E-B22C-A61E94AD12CD",
  "RiskResources": [
    {
      "LogicalResourceId": "MySG",
      "PhysicalResourceId": "sg-bp1dpioafqphedg9****",
      "ResourceType": "ALIYUN::ECS::SecurityGroup",
      "Reason": "There are some ECS instances (i-bp18el96s4wq635e****) depending on the sec
urity group.",
      "RiskType": "Referenced"
    }
  ]
}
```

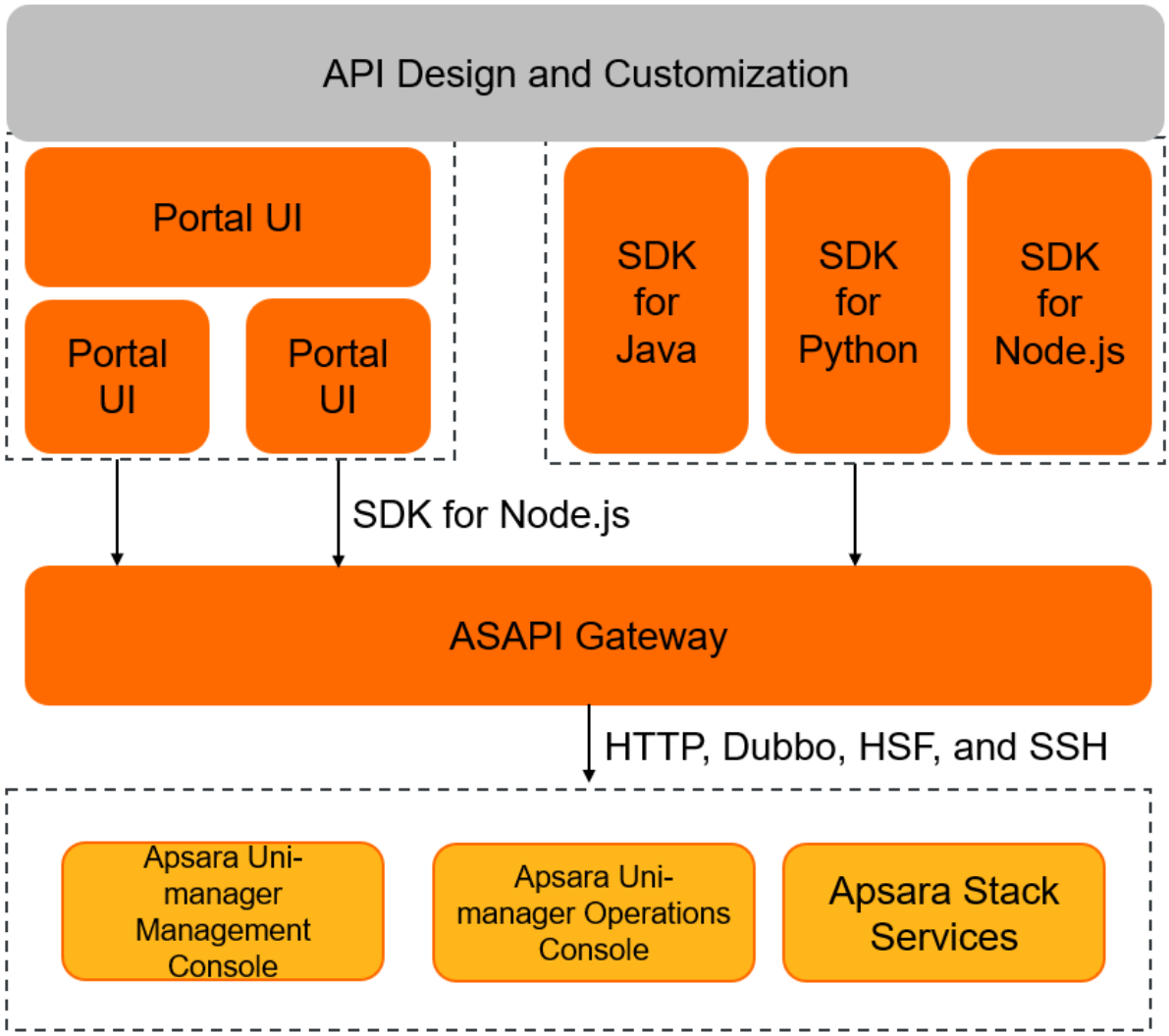
5.1.2. Use ASAPI to call Apsara Stack SDKs

5.1.2.1. 文档标题缺失，请补全后重新导出

5.1.2.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations

Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

5.1.2.1.2. Preparations

5.1.2.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

5.1.2.1.2.2. View information about API operations

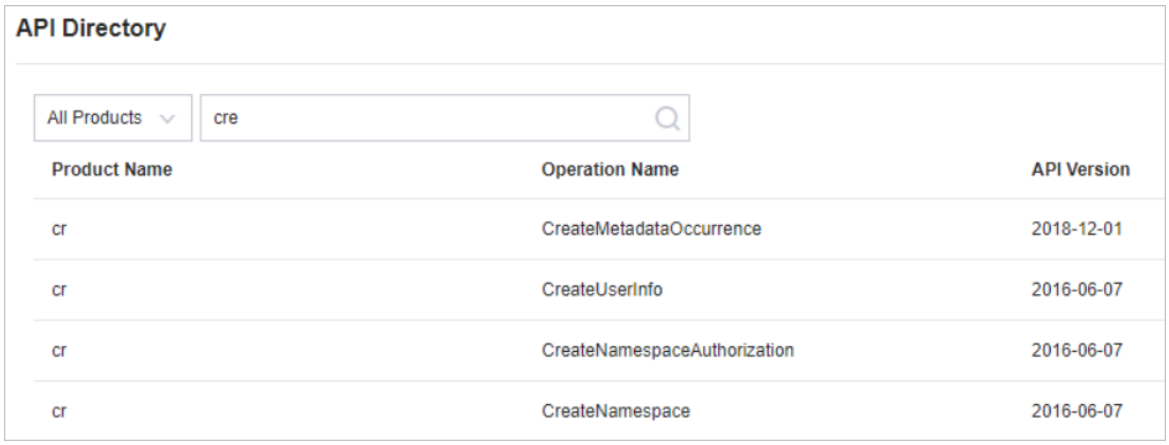
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



4. Then, you can view the service name, API operation name, and API operation version.

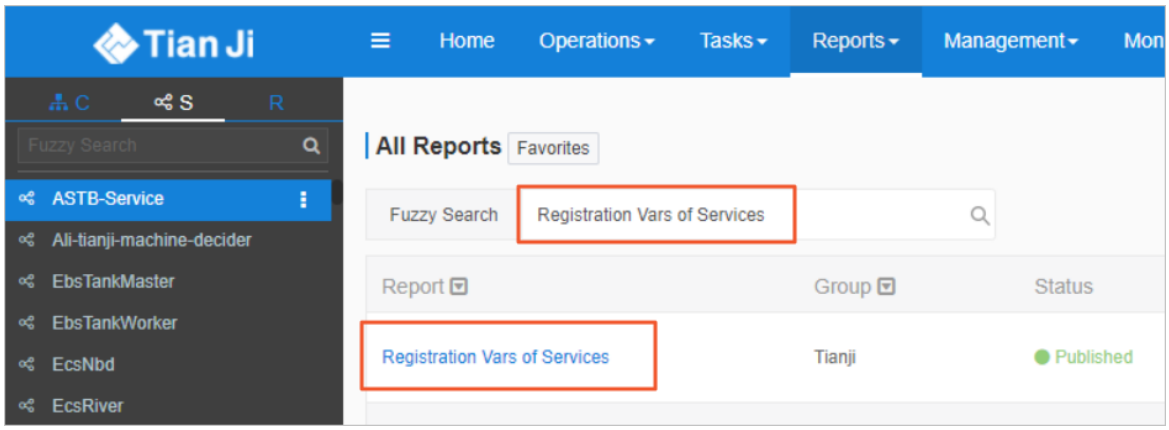
5.1.2.1.2.3. Generate an endpoint for the ASAPI

This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

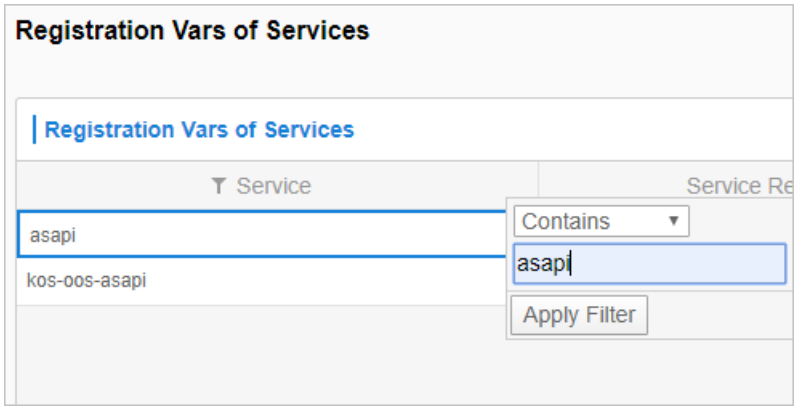
Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.

3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.
   In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

5.1.2.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

5.1.2.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

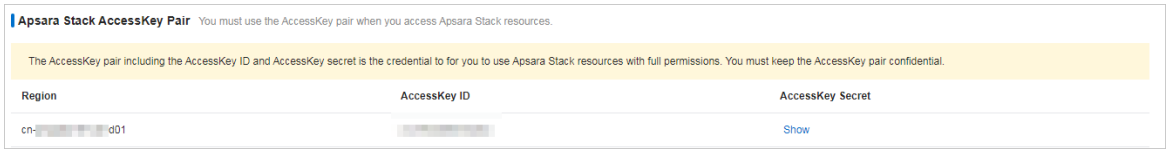
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

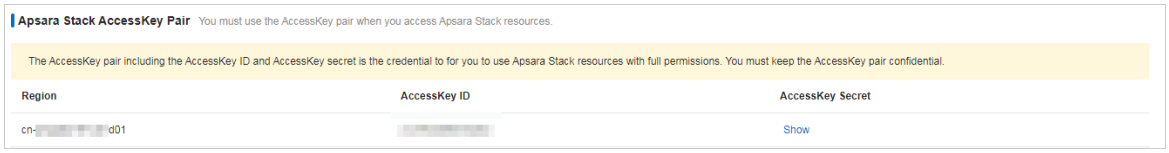
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

5.1.2.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



5.1.2.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

. .

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

5.1.2.1.4. SDK description

5.1.2.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an

AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

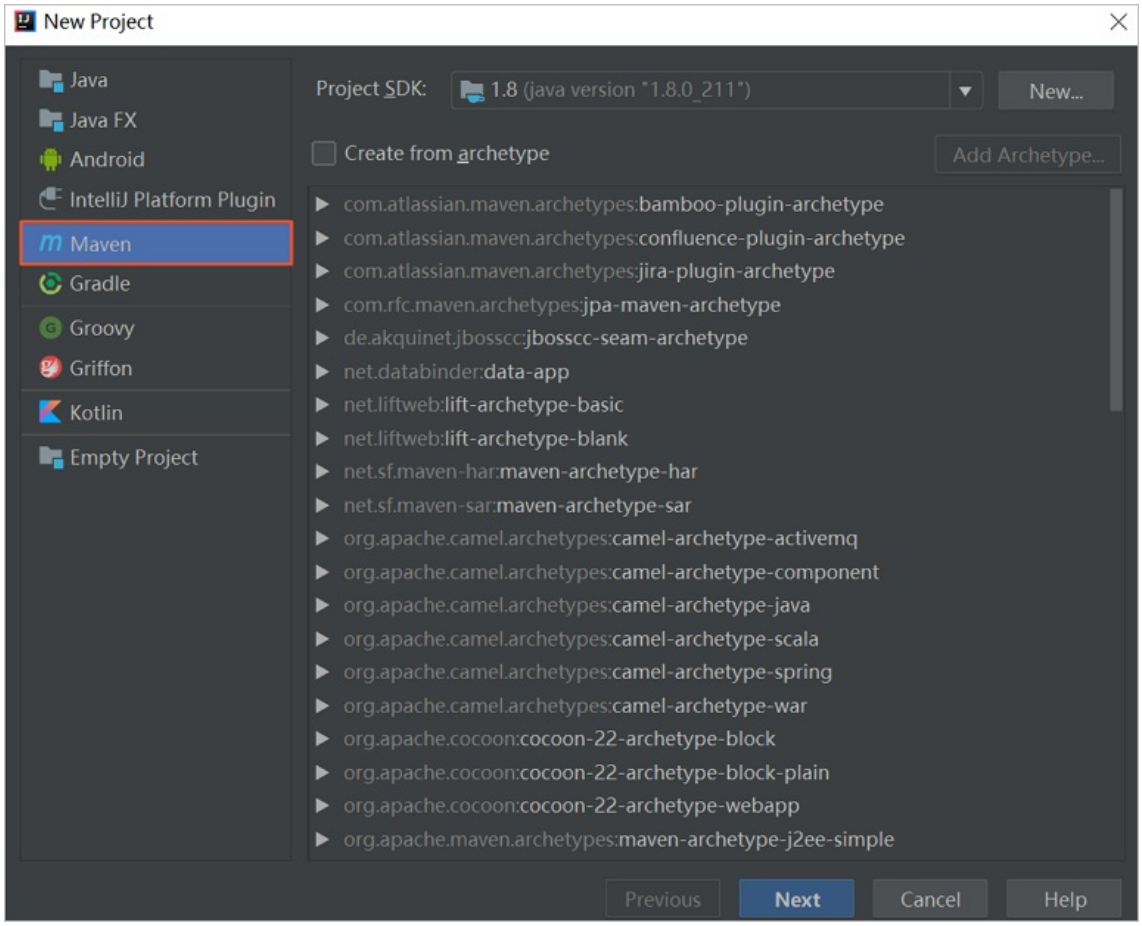
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

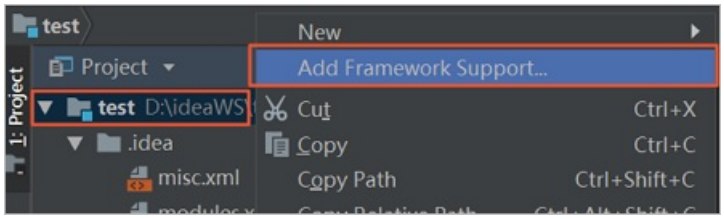
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

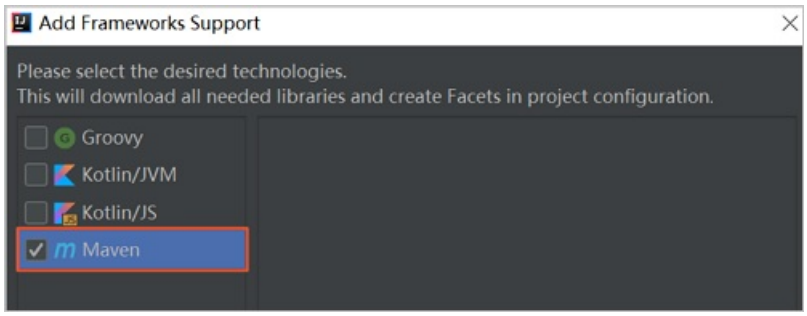
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



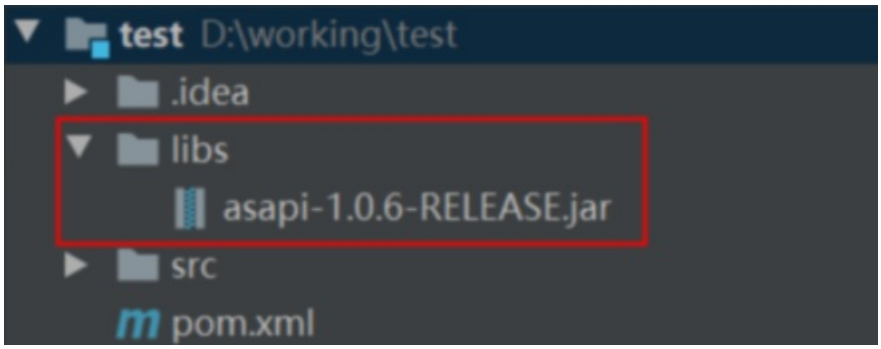
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



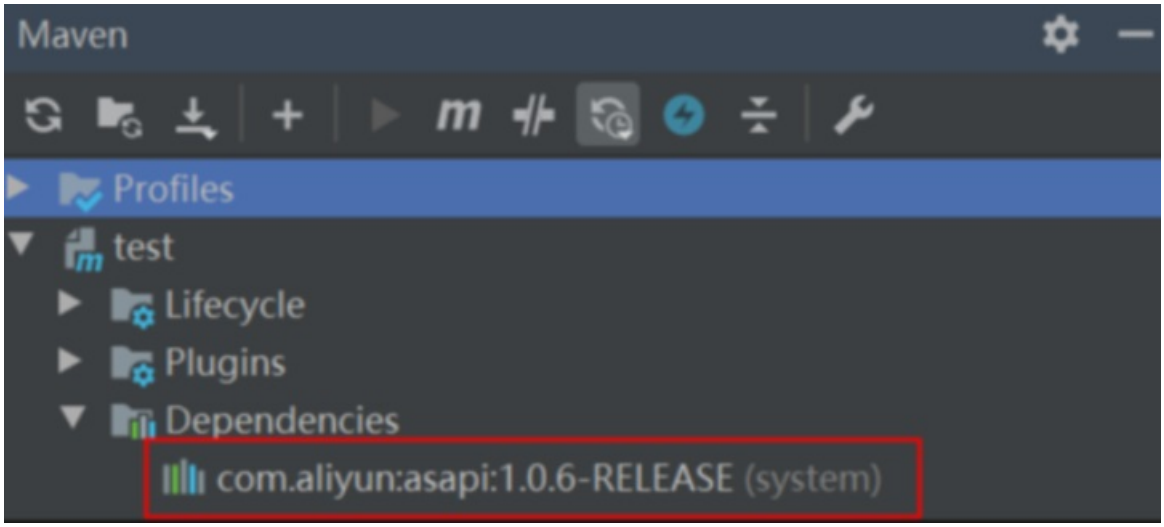
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

Note Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

   If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only for identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your environment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Version parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operation-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid values of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256 is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

5.1.2.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

5.1.2.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

5.1.2.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

5.1.2.1.5. HTTP requests

5.1.2.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

5.1.2.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

5.1.2.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

5.1.2.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

6.Object Storage Service (OSS)

6.1. Developer Guide

6.1.1. OSS API

6.1.1.1. Overview

Apsara Stack Object Storage Service (OSS) is a secure, cost-effective, and highly reliable cloud storage service. It enables you to store a large amount of data in the cloud. You can upload data to and download data from OSS anytime, anywhere, and on any Internet device by calling the simple RESTful APIs. OSS enables you to develop a variety of services that are capable of processing large amounts of data. These services include multimedia sharing websites, online storage, and personal and corporate data backups.

> **Note** Before you call these operations, ensure that you understand the OSS service instructions and usage agreements.

Instructions

OSS API reference provides request syntax, parameters, sample requests, and sample responses for operations. To implement secondary development, use SDK packages. For more information about how to install and use SDK, see OSS SDK reference.

Terms

Term	Description
bucket	The container used to store objects in OSS. Every object is contained in a bucket.
object	Objects are the basic unit for data operations in OSS. Objects are also known as files. Each object has metadata, data, and a key. A key can uniquely identify an object in a bucket.
endpoint	The domain name used to access OSS. OSS uses HTTP RESTful APIs to provide services. Different regions are accessed by using different endpoints. A region has different endpoints for access over the internal network and for access over the Internet. For more information, see Obtain an endpoint.
AccessKey	The access credential that is used to identify the requester. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret confidential. For more information, see Obtain an AccessKey pair.

6.1.1.2. Access control

6.1.1.2.1. Authenticate users by using signatures

OSS uses an AccessKey pair, which includes an AccessKey ID and an AccessKey secret to implement symmetric encryption and verify the identity of a requester. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret confidential.

> **Note** For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

AccessKey pairs can be categorized based on the account types.

- AccessKey pair of an Alibaba Cloud account: The AccessKey pair of an Alibaba Cloud account has full permissions on its resources.
- AccessKey pair of a RAM user: A RAM user is created and authorized by an Alibaba Cloud account. The AccessKey pair of a RAM user has limited permissions on specified resources.
- AccessKey pair of an STS temporary access credential: A temporary access credential is generated by an Alibaba Cloud account or a RAM user. The AccessKey pair of a temporary credential has limited permissions on specified resources within the validity period of the credential. An STS temporary access credential becomes invalid after its validity period is exceeded.

Before you send a request to OSS as an individual user, you must generate a signature string in the specified format for the request and use your AccessKey secret to encrypt the signature string and generate a verification code. After OSS receives the request, OSS finds the AccessKey secret based on your AccessKey ID, and uses the AccessKey secret to decrypt the signature string and verification code. Then, OSS calculates a verification code and compares it against the decrypted verification code. If the two verification codes are the same, OSS determines that the request is valid. Otherwise, OSS rejects the request and returns HTTP status code 403.

6.1.1.2.2. Add signatures to the Authorization header

You can include the Authorization header in the HTTP request to carry signature information and indicate that the requester has been authorized.

Calculation of the Authorization header

```
Authorization = "OSS " + AccessKeyId + ":" + Signature
Signature = base64(hmac-sha1(AccessKeySecret,
 VERB + "\n"
 + Content-MD5 + "\n"
 + Content-Type + "\n"
 + Date + "\n"
 + CanonicalizedOSSHeaders
 + CanonicalizedResource))
```

- `AccessKeySecret`: the key required for a signature.
- `VERB`: the HTTP request method such as PUT, GET, POST, HEAD, or DELETE.

- `\n`: the line break.
- `Content-MD5`: optional. This parameter specifies the Content-MD5 value of the message content (excluding headers). The value is obtained by calculating the 128-bit hash value and then encoding the value in Base64. This request header can be used for the message validity check. The message content is valid if the received message content is the same as the content that is sent. Example: eB5eJF1ptWaXm4bijSPyxw==. For more information, visit RFC 2616 Content-MD5.
- `Content-Type`: optional. This parameter specifies the type of the requested content. Example: application/octet-stream.
- `Date`: the time when the request is sent. The time must be in GMT. Example: Sun, 22 Nov 2015 08:16:38 GMT.
- `CanonicalizedOSSHeaders`: the HTTP headers in alphabetical order. The prefix of the HTTP headers is x-oss-.
- `CanonicalizedResource`: the OSS resource you want to access.

Specifically, the values of Date and CanonicalizedResource are required. If the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes, the OSS server rejects the request and returns HTTP status code 403.

Create CanonicalizedOSSHeaders

All HTTP headers whose prefixes are x-oss- are called canonicalized OSS headers. Process of creating canonicalized OSS headers:

1. The names of all HTTP request headers whose prefixes are x-oss- must be in lowercase letters. For example, `X-OSS-Meta-Name: TaoBao` is converted to `x-oss-meta-name: TaoBao`.
2. If the request is sent by using the AccessKey ID and AccessKey secret obtained by using STS, you must add the obtained security-token value to the signature string in the `x-oss-security-token:security-token` format.
3. Sort all obtained HTTP request headers in alphabetical order.
4. Delete any space on either side of a delimiter between the request header and content. For example, `x-oss-meta-name: TaoBao` is converted to `x-oss-meta-name:TaoBao`.
5. Separate all content and headers with the (`\n`) delimiter to form the final canonicalized OSS headers.

> **Note**
> - CanonicalizedOSSHeaders is optional. The (`\n`) delimiter at the end can be removed.
> - To create only one canonicalized OSS header, add the (`\n`) delimiter to the end of the header. Example: `x-oss-meta-a\n`.
> - To create multiple canonicalized OSS headers, add the (`\n`) delimiter to the end of each header. Example: `x-oss-meta-a:a\nx-oss-meta-b:b\nx-oss-meta-c:c\n`.

Create CanonicalizedResource

Destination OSS resources specified in the request sent by the user is called canonicalized resources. Process of creating canonicalized resources:

1. Set CanonicalizedResource to empty character string ("").

2. Specify the OSS resource you want to access in the following format: `/BucketName/ObjectName`. Set CanonicalizedResource to `/BucketName/` to access a bucket or to the forward slash (`/`) delimiter to access OSS.
3. If the requested resource contains subresources, sort all subresources in alphabetical order and separate them with the ampersand (`&`) delimiter. The question mark (`?`) and subresource string are added to the end of the CanonicalizedResource string. In this case, CanonicalizedResource is in the format of `/BucketName/ObjectName? acl&uploadId=UploadId`
4. If query strings (also called HTTP request parameters) are specified in the request, sort these query strings and request values in alphabetical order. Separate each pair of parameters and values with the ampersand (`&`) delimiter. Add the concatenated content to CanonicalizedResource as parameters. In this case, CanonicalizedResource is in the format of `/BucketName/ObjectName? acl&response-content-type=ContentType&uploadId=UploadId`.

> **Note**
>
> - Subresources supported by OSS include but are not limited to: acl, uploads, location, cors, logging, website, referer, lifecycle, delete, append, tagging, objectMeta, uploadId, partNumber, security-token, position, img, style, styleName, replication, replicationProgress, replicationLocation, cname, bucketInfo, comp, qos, live, status, vod, startTime, endTime, symlink, x-oss-process, response-content-type, response-content-language, response-expires, response-cache-control, response-content-disposition, and response-content-encoding.
> - Three types of subresources are available:
>   - Resource identifiers such as acl, append, uploadId, and symlink subresources
>   - Subresources that specify the response header fields. Example: `response-***`.
>   - Methods to process objects. Example: `x-oss-process`.

Rules to calculate signatures for the Authorization header

1. A signature string must be in the UTF-8 format. A signature string that contains Chinese characters must be encoded in UTF-8. The encoded signature string is used together with AccessKeySecret to calculate the final signature.
2. The HMAC-SHA1 method defined in RFC 2104 is used to calculate the final signature. In this method, the Key is `AccessKeySecret`.
3. Content-Type and Content-MD5 are optional in a request. If the request requires signature verification, the null value must be replaced with a line break (`\n`).
4. Among all non-standard HTTP headers, only headers that start with `x-oss-` require signature strings. Other non-standard HTTP headers are ignored by OSS. For example, the x-oss-magic header in the preceding example requires a signature string.
5. Headers that start with `x-oss-` must comply with the following conventions before signature verification:
   - The header names must be in lowercase.
   - The headers are sorted in alphabetical order.
   - No spaces exist on either side of a colon (:) between the header name and value.
   - Each header is followed by a line break (`\n`). If no headers are used, `CanonicalizedOSSHeader`

`s` is set to null.

Examples

Assume that the AccessKey ID is `4***7`, and the AccessKey secret is `O***V`.

Signature examples

Request	Signature string calculation formula	Signature string
`PUT /nelson HTTP/1.0 Content-MD5: eB5eJF1ptWaXm4bijSPyxw== Content-Type: text/html Date: Thu, 17 Nov 2005 18:49:58 GMT Host: oss-example.regionid.example.com X-OSS-Meta-Author: ***@bar.com X-OSS-Magic: a***a`	`Signature = base64(hmac-sha1(AccessKeySecret,VERB + "\n" + Content-MD5 + "\n"+ Content-Type + "\n" + Date + "\n" + CanonicalizedOSSHeaders+ CanonicalizedResource))`	`"PUT\n ***w==\n text/html\n Thu, 17 Nov 2005 18:49:58 GMT\n x-oss-magic:a***a\nx-oss-meta-author:***@bar.com\n/oss-example/nelson"`

An example of the signature calculation method:

```
import base64
import hmac
import sha
h = hmac.new("O***V",
 "PUT\n***M=\ntext/html\nThu, 17 Nov 2005 18:49:58 GMT\nx-oss-magic:abracadabra\nx-oss-meta
-author:***@bar.com\n/oss-example/nelson", sha)
Signature = base64.b64encode(h.digest())
print("Signature: %s" % Signature)
```

The signature calculation result must be 2***A= based on Authorization = "OSS" + AccessKeyId + ":" + Signature. Authorization that consists of OSS 4***7:2***A= and the Authorization header is sent:

```
PUT /nelson HTTP/1.0
Authorization:OSS 4***7:2***A=
Content-Md5: e***w==
Content-Type: text/html
Date: Thu, 17 Nov 2005 18:49:58 GMT
Host: oss-example.regionid.example.com
X-OSS-Meta-Author: ***@bar.com
X-OSS-Magic: a***a
```

Detail analysis

- If the imported AccessKey ID does not exist or is inactive, 403 Forbidden is returned. Error code: InvalidAccessKeyId.
- If the Authorization value format in the request header is incorrect, 400 Bad Request is returned. Error code: InvalidArgument.
- All OSS requests must use GMT stipulated in HTTP/1.1. The date format is `date1 = 2DIGIT SP month`

`SP 4DIGIT; day month year`. Example. 02 Jun 1982. In this format, day uses two digits. Therefore, Jun 2, 2 Jun 1982, and 2-Jun-1982 are all invalid formats.

- If no date is entered or the date is in the invalid format during signature verification, 403 Forbidden is returned. Error code: AccessDenied.
- The difference between the time on the client when the request is sent and the time on the server when the request is received must be within 15 minutes. Otherwise, 403 Forbidden is returned. Error code: RequestTimeTooSkewed.
- If the AccessKey ID is active but OSS determines that the signature of the request is invalid, 403 Forbidden is returned. The correct signature string for verification and encryption is returned in the response. You can check whether the signature string is valid based on the response of OSS. Sample response:

```
<? xml version="1.0" ? >
<Error>
 <Code>
 SignatureDoesNotMatch
 </Code>
 <Message>
 The request signature we calculated does not match the signature you provided. Check your
key and signing method.
 </Message>
 <StringToSignBytes>
 47 45 54 0a 0a 0a 57 65 64 2c 20 31 31 20 4d 61 79 20 32 30 31 31 20 30 37 3a 35 39 3a 32
35 20 47 4d 54 0a 2f 75 73 72 65 61 6c 74 65 73 74 3f 61 63 6c
 </StringToSignBytes>
 <RequestId>
 1***2
 </RequestId>
 <HostId>
 regionid.example.com
 </HostId>
 <SignatureProvided>
 y***8=
 </SignatureProvided>
 <StringToSign>
 GET
Wed, 11 May 2011 07:59:25 GMT
/oss-example? acl
 </StringToSign>
 <OSSAccessKeyId>
 A***Q
 </OSSAccessKeyId>
</Error>
```

OSS SDK automatically implements signatures in your requests. You do not need to manually calculate your signature when you use OSS SDK. For more information about the signature implementation for specific programming languages, see the OSS SDK code. The following table describes the sample code used to implement signatures in various SDKs. Sample code used to implement signatures in various SDKs

SDK	Signature implementation
Java SDK	OSSRequestSigner.java
Python SDK	auth.py
.Net SDK	OssRequestSigner.cs
PHP SDK	OssClient.php
C SDK	oss_auth.c
JavaScript SDK	client.js
Go SDK	auth.go
Ruby SDK	util.rb
iOS SDK	OSSModel.m
Android SDK	OSSUtils.java

FAQ

Example: Calculate the Content-MD5 value of message content "123456789". Correct method:

1. Calculate the 128-bit MD5 hash.
2. Encode the 128-bit MD5 hash (but not the 32-bit string) in Base64.

Python is used in this example. Correct calculation code:

```
>>> import base64,hashlib
>>> hash = hashlib.md5()
>>> hash.update("0123456789")
>>> base64.b64encode(hash.digest())
'eB5eJF1ptWaXm4bijSPyxw=='
```

Note that you must use hash.digest() to calculate the 128-bit MD5 hash.

```
>>> hash.digest()
'x\x1e^$]i\xb5f\x97\x9b\x86\xe2\x8d#\xf2\xc7'
```

A common incorrect method is to directly encode the 32-bit string in Base64. Example: Call the hash.hexdigest() function to obtain a printable 32-bit string.

```
>>> hash.hexdigest()
'781e5e245d69b566979b86e28d23f2c7'
```

Result of encoding the incorrect MD5 value in Base64:

```
>>> base64.b64encode(hash.hexdigest())
'NzgxZTVlMjQ1ZDY5YjU2Njk3OWI4NmUyOGQyM2YyYzc='
```

6.1.1.2.3. Generate a signed URL

In addition to using an Authorization field in the header, you can also add signature information to a URL so that you can forward the URL to a third party for authorized access.

Implementation

- The following code provides an example on how to generate a signed URL:

```
http://oss-example.regionid.example.com/oss-api.pdf?
AccessKeyId=AccessKeyId&Expires=1141889120&Signature=vjb***%3D
```

- A signed URL must include at least the following parameters: Signature, Expires, and AccessKeyId.
  - `Expires` specifies the timeout time of the URL. The value of this parameter follows the UNIX time format and must be in UTC. The value is the number of seconds that have elapsed since 00:00:00 Thursday, 1 January 1970. If the time OSS receives the URL request is later than the value of Expires that is included in the signature, a request timeout error code is returned. For example, the current time is 1141889060. To create a URL that is scheduled to expire in 60 seconds, you can set the value of Expires to 1141889120.
  - `AccessKeyId` specifies the AccessKey ID in the AccessKey pair.
  - `Signature` specifies the signature information. For all requests and header fields that OSS supports, the algorithm of signing the string for a URL is basically the same as that of signing the string for a header.

    ```
    Signature = urlencode(base64(hmac-sha1(AccessKeySecret,
     VERB + "\n"
     + CONTENT-MD5 + "\n"
     + CONTENT-TYPE + "\n"
     + EXPIRES + "\n"
     + CanonicalizedOSSHeaders
     + CanonicalizedResource)))
    ```

    The following differences are listed:

    - When a signed URL is generated, the Expires parameter replaces the Date parameter.
    - Signatures cannot be included in a URL and a header at the same time.
    - If more than one Signature, Expires, or AccessKeyId value is imported, the first imported value is used.
    - Before OSS authenticates a request by using a signature, OSS checks the request time to determine whether it is later than the time specified in Expires.
    - When you add a signature string to a URL, you must encode the URL.
  - When you add a signature to a URL for temporary access, you must include `security-token`. Format:

    ```
    http://oss-example.regionid.example.com/oss-api.pdf?
    AccessKeyId=AccessKeyId&Expires=1141889120&Signature=vjb***%3D&security-token=SecurityToken
    ```

Sample code

The following code provides an example on how to add a signature to a URL in Python:

```
import base64
import hmac
import sha
import urllib
h = hmac.new("O***V",
 "GET\n\n\n1141889120\n/oss-example/oss-api.pdf",
 sha)
urllib.quote (base64.encodestring(h.digest()).strip())
```

OSS SDK provides methods for adding a signature to a URL. For more information, see the "Authorized access" topic in SDK documents. The following table describes the implementation of a signed URL for OSS SDK.

URL signature implementation files for OSS SDK

SDK	URL signature method	Implementation file
Java SDK	OSSClient.generatePresignedUrl	OSSClient.java
Python SDK	Bucket.sign_url	api.py
.Net SDK	OssClient.GeneratePresignedUri	OssClient.cs
PHP SDK	OssClient.signUrl	OssClient.php
JavaScript SDK	signatureUrl	object.js
C SDK	oss_gen_signed_url	oss_object.c

Detail analysis

- If you adopt the approach of generating a signed URL, the authorized data is exposed on the Internet before the authorization period is exceeded. We recommend that you assess the use risks in advance.
- You can add a signature to a URL in PUT and GET requests.
- When a signature is added to a URL, the sequence of the Signature, Expires, and AccessKeyId parameters can be swapped. If one or more of the Signature, Expires, and AccessKeyId parameters are missing, 403 Forbidden is returned. Error code: AccessDenied.
- If the current access time is later than the Expires value that is set in the request or the time format is invalid, 403 Forbidden is returned. Error code: AccessDenied.
- If a URL includes one or more of the Signature, Expires, and AccessKeyId parameters and the header includes signature information, 400 Bad Request is returned. Error code: InvalidArgument.
- When the signature string is generated, Date is replaced by Expires, but the headers such as content-type and content-md5 defined in the preceding section are still included. (Although Date still exists in the request header, you do not need to add Date to the signature string.)

6.1.1.2.4. Authorize temporary access

OSS allows you to use STS to authorize temporary access. You can use STS to grant a third-party application or your RAM user an access credential that specifies the custom validity period and permissions.

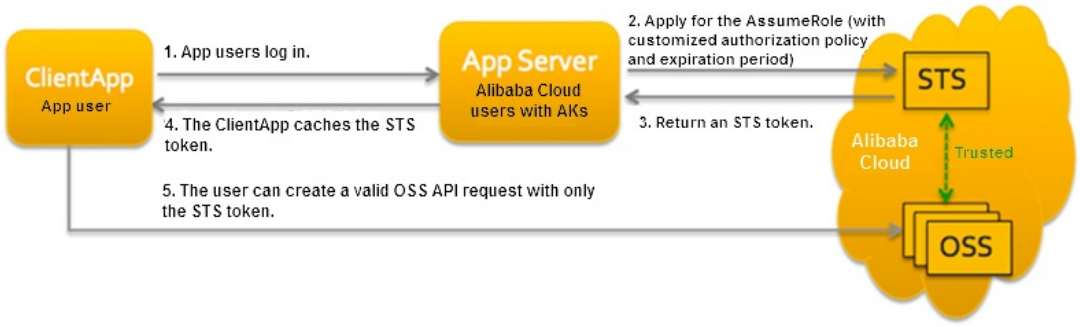
Introduction to STS

STS is a web service that provides temporary access tokens for cloud computing users. You can use STS to grant a third-party application or federated user (whose user ID is managed by yourself) an access credential with a custom validity period and permissions. The third-party application or federated user can use the access credential to directly call the operations provided by Alibaba Cloud services or use the Alibaba Cloud service SDKs to access the operations.

- You do not need to expose your long-term AccessKey pair to a third-party application. You need only to generate an access token and send it to the third-party application. You can customize the permissions and validity period of this token.
- The access token automatically becomes invalid when it expires.

The following figure uses an application as an example to show the authorization process.

Authorization process



Detailed solution description:

1. Log on as an application user. You can manage your application user ID. You can customize the ID management system or use an external web account or open ID. AppServer can define the principle of least privilege (POLP) of each valid application user.
2. AppServer requests a security token from STS. Before you call STS API operations, AppServer determines the POLP (described in policy syntax) of the app user and the validity period of the temporary security token. Then, AppServer calls the AssumeRole API operation of STS to obtain the security token. For more information about how to manage and use roles, see "Role management" in RAM User Guide.
3. STS returns a valid access credential to AppServer, including a security token, a temporary AccessKey pair (AccessKey ID and AccessKey secret), and the expiration time.
4. AppServer returns the access credential to ClientApp. ClientApp caches this credential. When the credential becomes invalid, ClientApp must request a new valid access credential from AppServer. For example, if the access credential is valid for one hour, ClientApp can request AppServer to update the access credential every 30 minutes.
5. ClientApp uses the cached access credential to call API operations provided by Alibaba Cloud services. Cloud services detect the STS access credential, verify the credential based on the STS service, and respond to the user request.

For more information about STS security tokens, see "Role management" in RAM User Guide. The key of the process is to call the AssumeRole operation of STS to obtain a valid access credential. You can also use STS SDK to call this API operation.

Use an STS credential to create a request that includes a signature

After the client of the user obtains an STS temporary credential, the client of the user uses the security token and temporary AccessKey pair (AccessKey ID and AccessKey secret) in the credential to create a signature. The method to create a signature for authorized access is the same as using the AccessKey pair of a root account to add a signature to the Authorization header. Take note of the following items:

- The signature key used by the user is the temporary AccessKey pair (AccessKey ID and AccessKey secret) that STS provides.
- The user needs to add the security token to the request header or in the URI as a request parameter. Only one of these two methods can be used. If both methods are selected, OSS returns InvalidArgument.
  - `x-oss-security-token:SecurityToken` is included in the request header. When CanonicalizedOSSHeaders of the signature is calculated, x-oss-security-token is taken into consideration.
  - security-token=SecurityToken is included in the URL. When CanonicalizedResource of the signature is calculated, security-token is taken into consideration as a subresource.

6.1.1.2.5. Bucket ACL

You can set the access control list (ACL) when you create a bucket, or modify the ACL for a created bucket. Only bucket owners can set or modify the ACL for buckets.

The following list describes the ACLs for buckets:

- Public read/write: Any users, including anonymous users can perform the PutObject, GetObject, and DeleteObject operations on the objects in the bucket. The bucket owner is charged for these operations. Exercise caution when you specify this ACL.
- Public read: Only the bucket owner can perform the PutObject and DeleteObject operations on the objects in the bucket. Other users, including anonymous users can perform only the GetObject operation on the objects in the bucket.
- Private: Only the bucket owner can perform the PutObject, GetObject, and DeleteObject operations on the objects in the bucket.

When you create a bucket, OSS sets the bucket ACL to private if you do not specify the bucket ACL. Only the bucket owner can call the PutBucketACL operation to modify the ACL of an existing bucket.

6.1.1.3. Common HTTP headers

This topic describes common request and response headers that are used for RESTful APIs.

Common request headers

In OSS, common HTTP request headers are used for RESTful APIs. These request headers can be used in all OSS requests. The following table lists the specific definitions of the request headers.

Common request headers

Header	Description

Header	Description
Authorization	The authentication information used to authenticate a request. Type: string Default value: null Scenario: non-anonymous requests
Content-Length	The content length of an HTTP request that is defined in RFC 2616. For more information, visit RFC 2616. Type: string Default value: null Scenario: requests that need to submit data to OSS
Content-Type	The content type of an HTTP request that is defined in RFC 2616. For more information, visit RFC 2616. Type: string Default value: null Scenario: requests that need to submit data to OSS
Date	The time in GMT stipulated in HTTP/ 1.1. Example: Wed, 05 Sep. 2012 23:00:00 GMT. Type: string Default value: null
Host	The value of the host to access. Format: `<bucketname>.regionid.example.com`. Type: string Default value: null

Common response headers

In OSS, common HTTP response headers are used for RESTful APIs. These response headers can be used in all the OSS requests. The following table lists the specific definitions of the response headers.

Common response headers

Header	Description
Content-Length	The content length of an HTTP request that is defined in RFC 2616. For more information, visit RFC 2616. Type: string Default value: null Scenario: requests that need to submit data to OSS

Header	Description
Connection	The connection status between the client and the OSS server. Type: enumeration Valid values: open and close Default value: null
Date	The time in GMT stipulated in HTTP/ 1.1. Example: Wed, 05 Sep. 2012 23:00:00 GMT. Type: string Default value: null
ETag	The entity tag (ETag) that is created to identify the content of the object when the object is created. If an object is created by using the PutObject request, the ETag value of the object is the MD5 hash of the object content. If an object is created by using another method, the ETag value of the content is the universally unique identifier (UUID) of the object content. The ETag value of the object can be used to check whether the object content is modified. Type: string Default value: null
Server	The server that generates a response. Type: string Default value: AliyunOSS
x-oss-request-id	The UUID that is created by the OSS server to identify the response. If you encounter any problems when you use OSS, you can contact OSS support personnel and provide this field to help them locate the problems. Type: string Default value: null

6.1.1.4. Service-relevant operations

6.1.1.4.1. GetService (ListBuckets)

You can call this operation to obtain all buckets that you own. The forward slash (/) in the request structure represents the root directory.

Usage notes

- The GetService operation is valid only for users who are authenticated.
- If no information for user authentication is provided in a request (anonymous access), OSS returns 403 Forbidden and error code AccessDenied.
- When all buckets are returned, the returned XML does not contain the Prefix, Marker, MaxKeys,

IsTruncated, and NextMarker nodes. If not all results are returned, the preceding nodes are added, in which NextMarker is used to assign the marker for the subsequent query.

Request structure

```
GET / HTTP/1.1
Host: oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request parameters

When you call GetService (ListBucket), you can set the parameters described in the following table to limit the list of buckets returned so that only specified results are returned.

Parameter	Type	Required	Example	Description
prefix	String	No	example	The prefix that the names of returned buckets must contain. If this parameter is not specified, prefix information is not used to filter the returned buckets.
marker	String	No	examplebucket	The name of the object after which the list begins. If this parameter is not specified, all results are returned.
max-keys	String	No	100	The maximum number of buckets that can be returned this time. Valid values: 1 to 1000 Default value: 100

Response parameters

Parameter	Type	Example	Description
ListAllMyBucketsResult	Container	N/A	The container that stores the result of the GetService (ListBucket) request.
Prefix	String	example	The prefix that the names of returned buckets contain. This node is available only when not all buckets are returned.

Parameter	Type	Example	Description
Marker	String	examplebucket	The name of the bucket after which the list begins. This node is available only when not all buckets are returned.
MaxKeys	String	1	The maximum number of returned buckets in the response. This node is available only when not all buckets are returned.
IsTruncated	Enumerated string	true	Indicates whether all results are returned. Valid values: • `true`: indicates that not all of the results are returned this time. • `false`: indicates that all of the results are returned this time. This node is available only when not all buckets are returned.
NextMarker	String	xz02tphky6fjfiuc0	The marker for the next GetService (ListBucket) request to return the remaining results. This node is available only when not all buckets are returned.
Owner	Container	N/A	The container that stores the information about the bucket owner.
ID	String	17464******02745	The user ID of the bucket owner.
DisplayName	String	17464******02745	The name of the bucket owner, which is the same as the user ID.
Buckets	Container	N/A	The container that stores the information about multiple buckets.
Bucket	Container	N/A	The container that stores the bucket information.
Name	String	examplebucket	The name of the bucket.
CreateDate	Date	2011-12-01T12:27:13.000Z	The time when the bucket was created. Format: `yyyy-mm-ddThh:mm:ss.timezone`.
Location	String	oss-cn-shenzhen	The data center in which the bucket is located.

Parameter	Type	Example	Description
ExtranetEndpoint	String	oss-cn-shenzhen.aliyuncs.com	The public endpoint of the bucket.
IntranetEndpoint	String	oss-cn-shenzhen-internal.aliyuncs.com	The internal endpoint of the bucket.

Examples

- Sample Request 1

```
GET / HTTP/1.1
Date: Thu, 15 May 2014 11:18:32 GMT
Host: regionid.example.com
Authorization: OSS n***i:C***I=
```

- Sample Response 1

```
HTTP/1.1 200 OK
Date: Thu, 15 May 2014 11:18:32 GMT
Content-Type: application/xml
Content-Length: 556
Connection: keep-alive
Server: AliyunOSS
x-oss-request-id: 5***4
<? xml version="1.0" encoding="UTF-8"? >
<ListAllMyBucketsResult>
 <Owner>
 <ID>17464******02745</ID>
 <DisplayName>17464******02745</DisplayName>
 </Owner>
 <Buckets>
 <Bucket>
 <CreationDate>2015-12-17T18:12:43.000Z</CreationDate>
 <ExtranetEndpoint>regionid.example.com</ExtranetEndpoint>
 <IntranetEndpoint>regionid-internal.example.com</IntranetEndpoint>
 <Location>oss-cn-shanghai</Location>
 <Name>app-base-oss</Name>
 </Bucket>
 <Bucket>
 <CreationDate>2014-12-25T11:21:04.000Z</CreationDate>
 <ExtranetEndpoint>regionid.example.com</ExtranetEndpoint>
 <IntranetEndpoint>regionid-internal.example.com</IntranetEndpoint>
 <Location>regionid</Location>
 <Name>examplebucket</Name>
 </Bucket>
 </Buckets>
</ListAllMyBucketsResult>
```

- Sample Request 2

```
GET /? prefix=xz02tphky6fjfiuc&max-keys=1 HTTP/1.1
Date: Thu, 15 May 2014 11:18:32 GMT
Host:  regionid.example.com
Authorization: OSS n***i:C***I=
```

- Sample Response 2

```
HTTP/1.1 200 OK
Date: Thu, 15 May 2014 11:18:32 GMT
Content-Type: application/xml
Content-Length: 545
Connection: keep-alive
Server: AliyunOSS
x-oss-request-id: 5***5
<? xml version="1.0" encoding="UTF-8"? >
<ListAllMyBucketsResult>
 <Prefix>xz02tphky6fjfiuc</Prefix>
 <Marker></Marker>
 <MaxKeys>1</MaxKeys>
 <IsTruncated>true</IsTruncated>
 <NextMarker>xz02tphky6fjfiuc0</NextMarker>
 <Owner>
 <ID>17464******02745</ID>
 <DisplayName>17464******02745</DisplayName>
 </Owner>
 <Buckets>
 <Bucket>
 <CreationDate>2014-05-15T11:18:32.000Z</CreationDate>
 <ExtranetEndpoint>regionid.example.com</ExtranetEndpoint>
 <IntranetEndpoint>oss-cn-hangzhou-internal.example.com</IntranetEndpoint>
 <Location>oss-cn-hangzhou</Location>
 <Name>examplebucket</Name>
 </Bucket>
 </Buckets>
</ListAllMyBucketsResult>
```

6.1.1.5. Bucket-relevant operations

6.1.1.5.1. PutBucket

You can call this operation to create a bucket. The region where the new bucket is located is consistent with the region in the endpoint that is contained in a request. After the data center of the bucket is determined, all objects in this bucket are stored in the corresponding region.

Request structure

```
PUT / HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
x-oss-acl: Permission
Authorization: SignatureValue
```

Usage notes

When you call the PutBucket operation, take note of the following items:

- Anonymous access is not supported.
- You can create up to 100 buckets in the same region by using an Alibaba Cloud account.

Request headers

Header	Type	Required	Example	Description
x-oss-acl	String	No	private	The access control list (ACL) for a bucket. Default value: private. Valid values: • *public-read-write* • *public-read* • *private*

For more information about other common request headers included in PutBucket requests, see Common request headers.

Request elements

Element	Type	Required	Example	Description
StorageClass	String	No	Standard	The storage class of the bucket. Default value: Standard. Valid storage: *Standard*

Response headers

The response headers involved in the PutBucket operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT / HTTP/1.1
Host: BucketName.regionid.example.com
Date: Fri, 24 Feb 2012 03:15:40 GMT
x-oss-acl: private
Authorization: OSS qn6qrrqxo2oawuk53otfjbyc:77Dvh5wQgIjWjwO/KyRt8dOP****
<? xml version="1.0" encoding="UTF-8"? >
<CreateBucketConfiguration>
    <StorageClass>Standard</StorageClass>
</CreateBucketConfiguration>
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 24 Feb 2012 03:15:40 GMT
Location: /***
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.5.2. PutBucketACL

You can call this operation to modify the access control list (ACL) of a bucket.

Request structure

```
PUT /? acl HTTP/1.1
x-oss-acl: Permission
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Usage notes

When you call the PutBucketAcl operation, take note of the following items:

- To call this operation, you must have write permissions on the bucket.
- PutBucketAcl uses the overwriting semantics. A new ACL overwrites the existing one.
- If the specified bucket for which you want to set ACL does not exist when you call this operation, a new bucket is created.

Request headers

Header	Type	Required	Example	Description

Header	Type	Required	Example	Description
x-oss-acl	String	Yes	private	The ACL that you want to set for the bucket. This header is included in PutBucketAcl requests to set the ACL of the bucket. If this header is not included, the ACL settings do not take effect. Valid values: public-read-write, public-read, and private • public-read-write: Any users, including anonymous users can read and write objects in the bucket. Exercise caution when you set the ACL of a bucket to public-read-write. • public-read: Only the owner or authorized users of this bucket can write objects in the bucket. Other users, including anonymous users can only read objects in the bucket. Exercise caution when you set the ACL of a bucket to public-read. • private: Only the owner or authorized users of this bucket can read and write objects in the bucket. Other users, including anonymous users cannot access the objects in the bucket without authorization.

For more information about other common request headers involved in the PutBucketAcl operation, see Common request headers.

Response headers

For more information about other common response headers involved in the PutBucketAcl operation, see Common response headers.

Examples

Sample requests

```
PUT /? acl HTTP/1.1
x-oss-acl: public-read
Host: BucketName.regionid.example.com
Date: Fri, 24 Feb 2012 03:21:12 GMT
Authorization: OSS q***c:K***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 24 Feb 2012 03:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

If the specified ACL does not exist, OSS returns HTTP status code 400.

Sample error responses

```
HTTP/1.1 400 Bad Request
x-oss-request-id: 5***9
Date: Fri, 24 Feb 2012 03:55:00 GMT
Content-Length: 309
Content-Type: text/xml; charset=UTF-8
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<Error>
  <Code>InvalidArgument</Code>
  <Message>no such bucket access control exists</Message>
  <RequestId>5***9</RequestId>
  <HostId>***-test.example.com</HostId>
  <ArgumentName>x-oss-acl</ArgumentName>
  <ArgumentValue>error-acl</ArgumentValue>
</Error>
```

6.1.1.5.3. PutBucketLogging

Bucket owners can enable logging for their buckets. When this feature is enabled, OSS automatically records detailed information about the requests to this bucket, and follows the user-specified rules to write access logs as an object to the user-specified bucket on an hourly basis.

Notice OSS provides logging for bucket owners to understand and analyze access to buckets. OSS does not guarantee that the bucket access logs contain all access records.

Usage notes

- The source bucket to which an object belongs and the destination bucket where the processed object is stored must belong to the same user.
- To disable logging for a bucket, you need only to send a request that contains an empty BucketLoggingStatus element. For more information about the specific method, see the following sample request.
- All PutBucketLogging requests must include signatures. Anonymous access is not supported.
- When the source bucket is deleted, the corresponding logging rules are also deleted.
- OSS generates bucket access log objects on an hourly basis. However, requests in the previous hour may be recorded in the log object generated for the subsequent hour.
- In the naming conventions for log objects generated by the OSS, UniqueString is just a UUID that OSS

generates to uniquely identify the object.

- Each time OSS generates a bucket access log object, OSS performs a PUT operation and records the storage space that the object uses. However, OSS does not record the traffic generated by the PUT operation. After log objects are generated, you can perform operations on these objects as common objects.
- OSS ignores all query string parameters whose values contain the x- prefix. However, these parameters are recorded in access log objects. To identify a special request from a large number of access logs, you can add a query string parameter whose value contains the x- prefix to the URL of the request. Example
  - `http://oss-example.regionid.example.com/aliyun-logo.png`
  - `http://oss-example.regionid.example.com/aliyun-logo.png?x-user=admin`

  When OSS processes the preceding two requests, the results are the same. However, you can search for access logs by x-user=admin to locate the marked request.
- A hyphen (`-`) may be contained in any field in OSS logs. The hyphen (-) indicates that data is unknown or the field is invalid for the current request.
- More fields will be added to OSS logs. We recommend that developers consider potential compatibility issues when you develop log processing tools.

Request structure

```
PUT /? logging HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Authorization: SignatureValue
Host: BucketName.regionid.example.com
<? xml version="1.0" encoding="UTF-8"? >
<BucketLoggingStatus>
 <LoggingEnabled>
 <TargetBucket>TargetBucket</TargetBucket>
 <TargetPrefix>TargetPrefix</TargetPrefix>
 </LoggingEnabled>
</BucketLoggingStatus>
```

Request elements

Element	Type	Required	Example	Description
BucketLoggingStatus	Container	Yes	N/A	The container that stores the logging status information.
LoggingEnabled	Container	No	N/A	The container that stores the access log information. This element is required only when logging is enabled.

Element	Type	Required	Example	Description
TargetBucket	String	This element is required when logging is enabled.	doc-log	The bucket that stores access logs.
TargetPrefix	String	No	MyLog-	The prefix of the access log object.

Response headers

Response headers involved in the PUTBucketLogging operation contain only common response headers. For more information, see Common response headers.

The name format of the object that stores access logs

```
<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString
```

TargetPrefix is specified by the user. YYYY-mm-DD-HH-MM-SS indicates the time when an access log object is created. YYYY indicates the year (four-digit). mm indicates the month (two-digit). DD indicates the day (two-digit). HH indicates the hour (two-digit). MM indicates the minute (two-digit). SS indicates the second (two-digit). UniqueString indicates the string generated by OSS. An example for the name of an access log object:

```
MyLog-oss-example-2012-09-10-04-00-00-0000
```

In the preceding example, MyLog- is the object name prefix specified by the user. oss-example is the name of the source bucket. 2012-09-10-04-00-00 is the object creation time (UTC+8). 0000 is the string generated by OSS.

Log object format

Element	Example	Description
Remote IP	119.140.142.11	The IP address from which a request originates. The proxy or your firewall may block this field.
Reserved	N/A	A reserved field.
Reserved	N/A	A reserved field.
Time	[02/May/2012:00:00:04 +0800]	The time when OSS received a request.
Request-URI	"GET /aliyun-logo.png HTTP/1.1"	The requested URI, including query string parameters.
HTTP Status	200	The HTTP status code that OSS returned.

Element	Example	Description
SentBytes	5576	The traffic consumed when a user downloads logs from OSS.
RequestTime (ms)	71	The length of time in milliseconds used to complete the request.
Referer	http://www.aliyun.com/product/oss	The HTTP header that identifies the address of the web page which is linked to the resource being requested.
User-Agent	curl/7.15.5	The user-agent header in an HTTP request.
HostName	oss-example.regionid.example.com	The domain name that is requested.
Request ID	505B01695037C2AF032593A4	The UUID used to uniquely identify this request.
LoggingFlag	true	Indicates whether the access logging feature is enabled.
Requester Aliyun ID	1657136103983691	The Alibaba Cloud ID of the requester. The value of this field is a hyphen (`-`) for anonymous access.
Operation	GetObject	The type of a request.
Bucket	oss-example	The name of the bucket that you requested.
Key	/aliyun-logo.png	The key of the object that is requested.
ObjectSize	5576	The size of an object.
Server Cost Time (ms)	17	The length of time for the OSS server to process this request. Unit: milliseconds.
Error Code	NoSuchBucket	The error code that OSS returned.
Request Length	302	The length of the request. Unit: bytes.
UserID	1657136103983691	The ID of a bucket owner.
Delta DataSize	280	The variation of the size of a bucket. The value of this field is a hyphen (`-`) if the bucket size does not change.
Sync Request	-	Indicates whether the request is forwarded to the origin by using Content Delivery Network (CDN). The value of this field is a hyphen (`-`) if this is not a CDN back-to-origin request.
Reserved	-	A reserved field.

Examples

Sample requests where bucket logging is enabled:

```
PUT /? logging HTTP/1.1
Host: ***.regionid.example.com
Content-Length: 186
Date: Fri, 04 May 2012 03:21:12 GMT
Authorization: OSS q***c:K***=
<? xml version="1.0" encoding="UTF-8"? >
<BucketLoggingStatus>
<LoggingEnabled>
<TargetBucket>doc-log</TargetBucket>
<TargetPrefix>MyLog-</TargetPrefix>
</LoggingEnabled>
</BucketLoggingStatus>
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 04 May 2012 03:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

Sample requests where bucket logging is disabled:

```
PUT /? logging HTTP/1.1
Host: ***.regionid.example.com
Content-Type: application/xml
Content-Length: 86
Date: Fri, 04 May 2012 04:21:12 GMT
Authorization: OSS q***c:K***=
<? xml version="1.0" encoding="UTF-8"? >
<BucketLoggingStatus>
</BucketLoggingStatus>
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 04 May 2012 04:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.5.4. PutBucketWebsite

You can call this operation to set the static website hosting mode for a bucket.

Usage notes

- Static websites are the websites where all web pages consist of static content, such as scripts in JavaScript run on the client. OSS does not support content that needs to be processed by the server, such as PHP, JSP, and APS.NET content.
- After a bucket is set to the static website hosting mode, OSS returns the index page for anonymous access to the root domain name of the static website, and returns the result of GetBucket for signed access to the root domain name of the static website.

Request structure

```
PUT /? website HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Host: BucketName.regionid.example.com
Authorization: SignatureValue
<? xml version="1.0" encoding="UTF-8"? >
<WebsiteConfiguration>
    <IndexDocument>
        <Suffix>index.html</Suffix>
    </IndexDocument>
    <ErrorDocument>
        <Key>errorDocument.html</Key>
    </ErrorDocument>
</WebsiteConfiguration>
```

Request parameters

- The following table describes the parameters that you can configure in the WebsiteConfiguration field in a request.

Parameter	Type	Required	Description
WebsiteConfiguration	Container	Yes	The root node. Parent nodes: none

- The following table describes the parameters that you can configure in the IndexDocument field in a request.

Element	Type	Required	Example	Description

Element	Type	Required	Example	Description
IndexDocument	Container	Conditional. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.	N/A	The container for the default homepage. Parent nodes: WebsiteConfiguration
Suffix	String	Conditional. This parameter must be specified if IndexDocument is specified.	index.html	The default homepage. If this parameter is set, the default homepage is returned for access to objects whose names end with a forward slash (/). Parent nodes: IndexDocument
SupportSubDir	String	No	false	Specifies whether a request sent to access a subfolder is redirected to the default homepage of the subfolder. Valid values: ◦ A value of true indicates that the request is redirected to the default homepage of the subfolder. ◦ A value of false indicates that the request is redirected to the default homepage of the root folder instead of that of the subfolder. If the default homepage for access to bucket.oss-cn-hangzhou.aliyuncs.com/subdir/ is set to index.html. A value of false indicates that the request is redirected to bucket.oss-cn-hangzhou.aliyuncs.com/index.html, and a value of true indicates that the request is redirected to bucket.oss-cn-hangzhou.aliyuncs.com/subdir/index.html. Default value: false Parent nodes: IndexDocument

Element	Type	Required	Example	Description
Type	Enumeration	No	0	Specifies the operation to perform when the default homepage is set, the name of the accessed object does not end with a forward slash (/), and the object does not exist. **Note** This parameter takes effect only when SupportSubDir is set to true. It takes effect after RoutingRule and before ErrorFile. If the default homepage for access to bucket.oss-cn-hangzhou.aliyuncs.com/abc is set to index.html and the abc object does not exist. The following content describes the operations that correspond to the valid values of Type: ◦ *0*: OSS checks whether the object named abc/index.html, which is in the `Object + Forward slash (/) + Homepage` format exists. If the object exists, OSS returns 302 and the Location header `/abc/`, which is in the `Forward slash (/) + Object + Forward slash (/)` format, in the response is URL-encoded. If the object does not exist, OSS returns 404 and continues to check ErrorFile. ◦ *1*: OSS returns 404 and NoSuchKey and continues to check ErrorFile. ◦ *2*: OSS checks whether abc/index.html exists. If abc/index.html exists, the content of the object is returned. If abc/index.html does not exist, OSS returns 404 and continues to check ErrorFile. Default value: 0 Parent nodes: IndexDocument

- The following table describes the parameters that you can configure in the ErrorDocument field in a request.

Parameter	Type	Required	Description
ErrorDocument	Container	Conditional. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.	The container used to store the default 404 page. Parent nodes: WebsiteConfiguration
Key	Container	Conditional. This parameter must be specified if ErrorDocument is specified.	The default 404 page. If this parameter is specified, the 404 page is returned when the target object does not exist. Parent nodes: ErrorDocument

- The following table describes RoutingRules, RoutingRule, and RuleNumber you can configure in a request.

Parameter	Type	Required	Example	Description
RoutingRules	Container	Conditional. You must specify at least one of the following containers: IndexDocument, ErrorDocument, and RoutingRules.	N/A	The container used to store RoutingRule. Parent nodes: WebsiteConfiguration
RoutingRule	Container	No	N/A	Specifies redirection-based back-to-origin rules or mirroring-based back-to-origin rules. You can specify a maximum of 20 rules. Parent nodes: RoutingRules
RuleNumber	String	Conditional. This parameter must be specified if RoutingRule is specified.	1	The sequence number used to match and execute redirection rules. Redirection rules are matched based on this parameter. If a match succeeds, the rule is executed and the subsequent rules are not executed. Parent nodes: RoutingRule

- The following table describes RoutingRules, RoutingRule, and Condition in a request.

Parameter	Type	Required	Example	Description
Condition	Container	Conditional. This parameter must be specified if RoutingRule is specified.	N/A	The matching conditions. If all of the specified conditions are met, the rule is executed. A rule is determined as matched only when the rule meets the conditions specified by all nodes in Condition. Parent nodes: RoutingRule
KeyPrefixEquals	String	No	abc/	Specifies that only objects whose names contain the specified prefix match the rule. Parent nodes: Condition
HttpErrorCodeReturnedEquals	HTTP status code	No	404	Specifies that the rule is matched only when the specified object is accessed and the specified status code is returned. If the redirection rule is a mirroring-based back-to-origin rule, the parameter value must be 404. Parent nodes: Condition
IncludeHeader	Container	No	N/A	Specifies that the rule is matched only when the specified header is included in the request and the header value is equal to the specified value. You can specify up to five headers. Parent nodes: Condition
Key	String	Conditional. This parameter must be specified if IncludeHeader is specified.	host	Specifies that the rule is matched only when the specified header is included in the request and the header value is equal to the value specified by Equals. Parent nodes: IncludeHeader
Equals	String	Conditional. This parameter must be specified if IncludeHeader is specified.	test.oss-cn-beijing-internal.aliyuncs.com	Specifies that the rule is matched only when the header specified by Key is included in the request and the header value is equal to the specified value. Parent nodes: IncludeHeader

Parameter	Type	Required	Example	Description
KeySuffixEquals	String	No	zip	Specifies that only objects whose names contain the specified suffix match the rule. The default value is null, which indicates that no suffix is specified. Parent nodes: Condition

- The following table describes RoutingRules, RoutingRule, and Redirect you can configure in a request.

Parameter	Type	Required	Example	Description
Redirect	Container	Conditional. This parameter must be specified if RoutingRule is specified.	N/A	The operation to perform after the rule is matched. Parent nodes: RoutingRule
RedirectType	String	Conditional. This parameter must be specified if Redirect is specified.	Mirror	The redirection type. Valid values: ◦ Mirror: mirroring-based back-to-origin ◦ External: external redirection. OSS returns the 3xx HTTP redirect code and the Location header for your to redirect the request to another IP address. ◦ Internal: internal redirection. OSS redirects the access from Object1 to Object2 based on the rule. In this case, the user accesses Object2 instead of Object1. ◦ AliCDN: redirection based on Alibaba Cloud CDN. OSS adds an additional header to the request, which is different from the External type. After CDN identifies the header, CDN redirects the access to the specified IP address and returns the obtained data instead of the redirect request to the user. Parent nodes: Redirect

Parameter	Type	Required	Example	Description
PassQueryString	Boolean	No	true	Specifies whether parameters in the original request are contained in the redirect request when redirection-based or mirroring-based back-to-origin is performed. For example, if the PassQueryString parameter is set to true and the `? a=b&c=d` parameter is contained in the request sent to OSS, this parameter is added to the Location header in the redirect request when the HTTP redirect code is 302. For example, if the request is `Location :www.test.com? a=b&c=d` and the redirecting type is mirroring-based back-to-origin, the ?a=b&c=d parameter is also contained in the back-to-origin request. Valid values: true and false Default value: false Parent nodes: Redirect
MirrorURL	String	Conditional. This parameter must be specified if RedirectType is set to Mirror.	http://www.example.com/	Specifies the IP address of the origin in mirroring-based back-to-origin. This parameter takes effect only when the value of RedirectType is Mirror. URLs that start with http:// or https:// must end with a forward slash (/). OSS adds the object name to the string to form the back-to-origin URL. For example, the object to access is myobject. If the specified URL is `http://www.example.com/`, the back-to-origin URL is `http://www.test.com/myobject`. If the specified URL is `http://www.test.com/dir1/`, the back-to-origin URL is `http://www.test.com/dir1/myobject`. Parent nodes: Redirect

Parameter	Type	Required	Example	Description
MirrorPassQueryString	Boolean	No	true	This parameter plays the same role as PassQueryString and has a higher priority than PassQueryString. This parameter takes effect only when the value of RedirectType is Mirror. Default value: false Parent nodes: Redirect
MirrorFollowRedirect	Boolean	No	true	Specifies whether the access is redirected to the specified Location if the origin returns a 3XX HTTP status code and when the origin receives a mirroring-based back-to-origin request. For example, when a mirroring-based back-to-origin request is initiated, the origin returns 302, and Location is specified. ◦ In this case, if the value of MirrorFollowRedirect is true, OSS continues to send requests to the IP address specified by Location. A request can be redirected for a maximum of 10 times. If a request is redirected for more than 10 times, a mirroring-based back-to-origin failure is returned. ◦ If the value of MirrorFollowRedirect is false, OSS returns 302 and passes through the Location. This parameter takes effect only when the value of RedirectType is Mirror. Default value: true Parent node: Redirect

Parameter	Type	Required	Example	Description
MirrorCheckMd5	Boolean	No	false	Specifies whether OSS checks the MD5 hash of the body of the response returned by the origin. When the value of this parameter is true and the response returned by the origin includes the Content-Md5 header, OSS checks whether the MD5 hash of the obtained data matches the header value. If the MD5 hash of the obtained data does not match the header value, OSS does not store the data. This parameter takes effect only when the value of RedirectType is Mirror. Default value: false Parent nodes: Redirect
MirrorHeaders	Container	No	N/A	Specifies the headers contained in the response that is returned when you use mirroring-based back-to-origin. This parameter takes effect only when the value of RedirectType is Mirror. Parent nodes: Redirect
PassAll	Boolean	No	true	Specifies whether OSS passes through all request headers ○ except for reserved headers and headers that start with oss-, x-oss-, and x-drs-, such as content-length, authorization2, authorization, range, and date ○ to the origin. This parameter takes effect only when the value of RedirectType is Mirror. Default value: false Parent nodes: MirrorHeaders

Parameter	Type	Required	Example	Description
Pass	String	No	myheader-key1	Specifies the headers to pass through to the origin. The header can be up to 1,024 bytes in length and can contain only letters, digits, and hyphens (-). This parameter takes effect only when the value of RedirectType is Mirror. You can specify up to 10 headers. Parent nodes: MirrorHeaders
Remove	String	No	myheader-key3	Specifies the headers that are not allowed to be passed through to the origin. The header can be up to 1,024 bytes in length. The character set of this parameter is the same as that of Pass. This parameter takes effect only when the value of RedirectType is Mirror. You can specify up to 10 headers. This parameter is used together with PassAll. Parent nodes: MirrorHeaders
Set	Container	No	N/A	Specifies the headers that are sent to the origin. The specified headers are configured in the data returned by the origin regardless of whether the headers are contained in the request. You can specify up to 10 header sets. This parameter takes effect only when the value of RedirectType is Mirror. Parent nodes: MirrorHeaders
Key	String	Conditional. This parameter must be specified if Set is specified.	myheader-key5	Specifies the key of the header. The key can be up to 1,024 bytes in length. The character set of this parameter is the same as that of Pass. This parameter takes effect only when the value of RedirectType is Mirror. Parent nodes: Set

Parameter	Type	Required	Example	Description
Value	String	Conditional. This parameter must be specified if Set is specified.	myheader-value5	Specifies the value of the header. The value can be up to 1,024 bytes in length and cannot contain `\r\n`. This parameter takes effect only when the value of RedirectType is Mirror. Parent nodes: Set
Protocol	String	Conditional. This parameter must be specified if the value of RedirectType is External or AliCDN.	http	The protocol used for redirection. For example, if you access the object named test, Protocol is set to https, and Hostname is set to `www.example.com`, the Location header is `https://www.example.com/test`. This parameter takes effect only when the value of RedirectType is External or AliCDN. Valid values: *http* and *https*. Parent nodes: Redirect
HostName	String	Conditional. This parameter must be specified if the value of RedirectType is External or AliCDN.	www.example.com	The domain name used for redirection, which must comply with the naming conventions for domain names. For example, if you access the object named test, Protocol is set to https, and Hostname is set to `www.example.com`, the Location header is `https://www.example.com/test`. Parent nodes: Redirect

Parameter	Type	Required	Example	Description
ReplaceKeyPrefixWith	String	No	abc/	Specifies the string that is used to replace the prefix of the object name in the redirect request. If the prefix of the object is empty, this string is added before the object name. **Note** You can specify only one of the ReplaceKeyWith and ReplaceKeyPrefixWith nodes in a rule. If KeyPrefixEquals is set to abc/ and ReplaceKeyPrefixWith is set to def/, when you access the abc/test.txt object, the Location header is `http://www.example.com/def/test.txt`. Parent nodes: Redirect
EnableReplacePrefix	Boolean	No	true	If this parameter is set to true, the prefix of object names is replaced with the value specified by ReplaceKeyPrefixWith. If this parameter is not specified or empty, the prefix of object names is truncated. **Note** When the ReplaceKeyWith parameter is not empty, this parameter cannot be set to true. Default value: false Parent nodes: Redirect
ReplaceKeyWith	String	No	prefix/${key}.suffix	Specifies the string that is used to replace the requested object name when the request is redirected. This parameter can be a variable. The ${key} variable that indicates the object name in the request is supported. If ReplaceKeyWith is set to `prefix/${key}.suffix`, when you access the object named test, the Location header is `http://www.example.com/prefix/test.suffix`. Parent nodes: Redirect

Parameter	Type	Required	Example	Description
HttpRedirectCode	HTTP status code	Conditional. This parameter must be specified if the value of RedirectType is External or AliCDN.	301	The HTTP redirect code in the response. This parameter takes effect only when the value of RedirectType is External or AliCDN. Valid values: 301, 302, and 307 Parent nodes: Redirect

For more information about other common request elements of PutBucketWebsite, see Common request headers.

Response elements

For more information about the response elements of PutBucketWebsite, see Common response headers.

Examples

- Sample requests

```
PUT /? website HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Content-Length: 209
Date: Fri, 04 May 2012 03:21:12 GMT
Authorization: OSS qn6qrrqx******k53otfjbyc:KU5h8YM******0dXqf3JxrTZHiA=
<? xml version="1.0" encoding="UTF-8"? >
<WebsiteConfiguration>
  <IndexDocument>
    <Suffix>index.html</Suffix>
      <SupportSubDir>true</SupportSubDir>
      <Type>0</Type>
  </IndexDocument>
  <ErrorDocument>
    <Key>error.html</Key>
  </ErrorDocument>
</WebsiteConfiguration>
```

- Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 534B371674E88A4D8906008B
Date: Fri, 04 May 2012 03:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

- Complete sample code

```
PUT /? website HTTP/1.1
Date: Fri, 27 Jul 2018 09:03:18 GMT
Content-Length: 2064
Host: test.oss-cn-hangzhou-internal.aliyuncs.com
Authorization: OSS a1nBN******QMf8u:sNKIHT6ci/z231yIT5vYnetD****
User-Agent: aliyun-sdk-python-test/0.4.0
<WebsiteConfiguration>
  <IndexDocument>
    <Suffix>index.html</Suffix>
    <SupportSubDir>true</SupportSubDir>
    <Type>0</Type>
  </IndexDocument>
  <ErrorDocument>
    <Key>error.html</Key>
  </ErrorDocument>
  <RoutingRules>
    <RoutingRule>
      <RuleNumber>1</RuleNumber>
      <Condition>
        <KeyPrefixEquals>abc/</KeyPrefixEquals>
        <HttpErrorCodeReturnedEquals>404</HttpErrorCodeReturnedEquals>
      </Condition>
      <Redirect>
        <RedirectType>Mirror</RedirectType>
        <PassQueryString>true</PassQueryString>
        <MirrorURL>http://www.test.com/</MirrorURL>
        <MirrorPassQueryString>true</MirrorPassQueryString>
        <MirrorFollowRedirect>true</MirrorFollowRedirect>
        <MirrorCheckMd5>false</MirrorCheckMd5>
        <MirrorHeaders>
          <PassAll>true</PassAll>
          <Pass>myheader-key1</Pass>
          <Pass>myheader-key2</Pass>
          <Remove>myheader-key3</Remove>
          <Remove>myheader-key4</Remove>
          <Set>
            <Key>myheader-key5</Key>
            <Value>myheader-value5</Value>
          </Set>
        </MirrorHeaders>
      </Redirect>
    </RoutingRule>
    <RoutingRule>
      <RuleNumber>2</RuleNumber>
      <Condition>
        <KeyPrefixEquals>abc/</KeyPrefixEquals>
        <HttpErrorCodeReturnedEquals>404</HttpErrorCodeReturnedEquals>
        <IncludeHeader>
          <Key>host</Key>
          <Equals>test.oss-cn-beijing-internal.aliyuncs.com</Equals>
        </IncludeHeader>
      </Condition>
      <Redirect>
        <RedirectType>AliCDN</RedirectType>
```

```
        <Protocol>http</Protocol>
        <HostName>www.test.com</HostName>
        <PassQueryString>false</PassQueryString>
        <ReplaceKeyWith>prefix/${key}.suffix</ReplaceKeyWith>
        <HttpRedirectCode>301</HttpRedirectCode>
      </Redirect>
    </RoutingRule>
  </RoutingRules>
</WebsiteConfiguration>
HTTP/1.1 200 OK
Server: AliyunOSS
Date: Fri, 27 Jul 2018 09:03:18 GMT
Content-Length: 0
Connection: keep-alive
x-oss-request-id: 5B5ADFD6ED3CC49176CBE29D
x-oss-server-time: 47
```

6.1.1.5.5. PutBucketReferer

You can call this operation to configure a Referer whitelist and specify whether to allow a request whose Refer field is empty.

Usage notes

PutBucketReferer replaces the existing configured whitelist with the whitelist specified by RefererList. When empty RefererList that contains no Referer request elements is uploaded, this operation overwrites the configured whitelist. The existing RefererList is deleted.

Request structure

```
PUT /? referer HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Host: BucketName.oss.example.com
Authorization: SignatureValue
<? xml version="1.0" encoding="UTF-8"? >
<RefererConfiguration>
<AllowEmptyReferer>true</AllowEmptyReferer >
    <RefererList>
        <Referer> http://www.aliyun.com</Referer>
        <Referer> https://www.aliyun.com</Referer>
        <Referer> http://www. *.com</Referer>
        <Referer> https://www.?.aliyuncs.com</Referer>
    </RefererList>
</RefererConfiguration>
```

Request elements

Element	Type	Required	Example	Description
RefererConfiguration	Container	Yes	N/A	The container that contains the Referer configurations. Type: container Child nodes: AllowEmptyReferer and RefererList Parent node: none
AllowEmptyReferer	Boolean	Yes	true	Specifies whether to allow a request whose Refer field is empty. Default value: true
RefererList	Container	Yes	N/A	The container that contains the Referer whitelist.
Referer	String	No	http://www.aliyun.com	The Referer whitelist.

Response headers

The response headers involved in the PutBucketReferer operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests that exclude the Referer element

```
PUT /? referer HTTP/1.1
Host: BucketName.oss.example.com
Content-Length: 247
Date: Fri, 04 May 2012 03:21:12 GMT
Authorization: OSS q***c:K***=
<? xml version="1.0" encoding="UTF-8"? >
<RefererConfiguration>
<AllowEmptyReferer>true</AllowEmptyReferer >
< RefererList />
</RefererConfiguration>
```

Sample requests that include the Referer element

```
PUT /? referer HTTP/1.1
Host: BucketName.oss.example.com
Content-Length: 247
Date: Fri, 04 May 2012 03:21:12 GMT
Authorization: OSS q***c:K***=
<? xml version="1.0" encoding="UTF-8"? >
<RefererConfiguration>
<AllowEmptyReferer>true</AllowEmptyReferer >
< RefererList>
<Referer> http://www.aliyun.com</Referer>
<Referer> https://www.aliyun.com</Referer>
<Referer> http://www. *.com</Referer>
<Referer> https://www.?.aliyuncs.com</Referer>
</ RefererList>
</RefererConfiguration>
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 04 May 2012 03:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.5.6. PutBucketLifecycle

A bucket owner has permissions to call PutBucketLifecycle to configure lifecycle for a bucket. After a lifecycle rule is enabled, OSS automatically deletes objects that match the rule or converts the storage class for the objects based on the rule on a regular basis.

Usage notes

When you call the PutBucketLifecycle operation, take note of the following items:

- Only bucket owners or RAM users who have the PutBucketLifecycle permission can initiate a PutBucketLifecycle request.
- If no lifecycle rules are configured for a bucket, a lifecycle rule is created after you call PutBucketLifecycle. If a lifecycle rule is configured for the bucket, a lifecycle rule is created and the existing lifecycle rule is overwritten.
- PutBucketLifecycle uses the overwriting semantics. New lifecycle rules overwrite the existing rules. To add lifecycle rules for a bucket, call GetBucketLifecycle to obtain the existing lifecycle configurations of the bucket, add new lifecycle configurations, and then call PutBucketLifecycle to update the lifecycle configurations for the bucket.
- When you call the PutBucketLifecycle operation, you can set a validity period or expiration date for objects or parts that are generated in incomplete multipart upload tasks.

Request structure

```
PUT /? lifecycle HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Authorization: SignatureValue
Host: BucketName.oss.example.com
<? xml version="1.0" encoding="UTF-8"? >
<LifecycleConfiguration>
 <Rule>
 <ID>RuleID</ID>
 <Prefix>Prefix</Prefix>
 <Status>Status</Status>
 <Expiration>
 <Days>Days</Days>
 </Expiration>
 <AbortMultipartUpload>
 <Days>Days</Days> </AbortMultipartUpload>
 </Rule>
</LifecycleConfiguration>
```

Request headers

Request headers involved in the PutBucketLifecycle operation contain only common request headers. For more information, see Common request headers.

Request elements

Element	Type	Required	Example	Description
CreatedBeforeDate	String	Either Days or CreatedBeforeDate required	2002-10-11T00:00:00.000Z	The date based on which to run lifecycle rules. OSS performs the specified operation on data whose last modified date is before this date. Specify the time in the ISO 8601 standard. The time must be at UTC 00:00:00. For example, 2002-10-11T00:00:00.000Z indicates that objects last updated before 2002-10-11T00: 00: 00.000Z are deleted or the storage classes of these objects are converted to another storage class. Objects last updated at or after this time are not deleted or their storage classes are not converted to another storage class.
Days	Positive integer	Either Days or CreatedBeforeDate required	1	The number of days within which objects can be retained after they are last modified.
Expiration	Container	No	N/A	The delete operation on the objects for the lifecycle rule.

Element	Type	Required	Example	Description
AbortMultipartUpload	Container	No	N/A	The delete operation on the multipart upload tasks that are incomplete.
ID	String	No	rule1	The unique ID of a lifecycle rule. The ID can be a maximum of 255 bytes in length. If the value of this parameter is null or not specified, OSS automatically generates a unique ID for the lifecycle rule.
LifecycleConfiguration	Container	Yes	N/A	The container that stores lifecycle configurations. The container can contain up to 1,000 rules.
Prefix	String	Yes	data	The prefix of the names of objects to which the rule applies. The prefixes specified by different rules cannot overlap. • If Prefix is specified, this rule applies only to objects whose names contain the specified prefix in the bucket. • If Prefix is not specified, this rule applies to all objects in the bucket.
Rule	Container	Yes	N/A	Identifies the rule.
Status	String	Yes	Enabled	Specifies whether to run the rule. A value of Enabled indicates that OSS runs the rule. A value of Disabled indicates that OSS ignores the rule.

Response headers

The response headers involved in the PutBucketLifecycle operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT /? lifecycle HTTP/1.1
Host: BucketName.oss.example.com
Content-Length: 443
Date: Mon, 14 Apr 2014 01:08:38 GMT
Authorization: OSS q***c:K***=
<? xml version="1.0" encoding="UTF-8"? >
</LifecycleConfiguration>
 <Rule>
 <ID>rule1</ID>
 <Prefix>logs/</Prefix>
 <Status>Enabled</Status>
 <Expiration>
 <Days>1</Days>
 </Expiration>
 <AbortMultipartUpload>
 <Days>1</Days>
 </AbortMultipartUpload>
 </Rule>
 <Rule>
 <ID>rule2</ID>
 <Prefix>backup/</Prefix>
 <Status>Enabled</Status>
 <Expiration>
 <CreatedBeforeDate>2014-10-11T00:00:00.000Z</CreatedBeforeDate>
 </Expiration>
 <AbortMultipartUpload>
 <CreatedBeforeDate>2014-10-11T00:00:00.000Z</CreatedBeforeDate>
 </AbortMultipartUpload>
 </Rule>
</LifecycleConfiguration>
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Mon, 14 Apr 2014 01:17:10 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.5.7. GetBucket (ListObjects)

You can call this operation to list the information about all objects in a bucket.

Detail analysis

- User metadata of objects is not returned for the GetBucket request.
- If listing cannot be complete at a time because of the max-keys setting, `<NextMarker>` is added to the returned result, which indicates that the subsequent listing can start from this marker. The value of NextMarker is still in the list result.
- During a conditional query, even if the marker does not exist in the list, items after the marker are

returned in alphabetical order. If the value of max-keys is smaller than 0 or greater than 1000, OSS returns 400 Bad Request and error code InvalidArgument.

- The prefix and marker parameters are used to list the returned objects by page. The parameter value must be smaller than 1,024 bytes in length.
- If prefix is set to a folder name in the request, the objects whose names contain this prefix are listed, including all objects and subfolders in the folder. If prefix is set to a folder name and delimiter is set to a forward slash (/) in the request, the names of the objects and subfolders in the folder are listed in the CommonPrefixes element. Objects and subfolders are not listed. For example, a bucket contains the following objects: fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. If prefix is set to fun/, the three objects are returned. If prefix is set to fun/ and delimiter is set to a forward slash (/), fun/test.jpg and fun/movie/are returned.

Request structure

```
GET / HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request parameters

Parameter	Type	Required	Example	Description
delimiter	String	No	/	The character used to group objects by name. If you specify the Delimiter parameter in the request, the response contains the CommonPrefixes element. Objects whose names contain the same string from the prefix to the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes. Default value: null
marker	String	No	test1.txt	The name of the object after which the list begins. If this parameter is specified, objects whose names are alphabetically greater than the marker parameter value are returned. The marker parameter is used to list the returned objects by page, and this parameter value must be smaller than 1,024 bytes in length. Even if the specified marker does not exist in the list during a conditional query, the list starts from the object whose name is alphabetically greater than the marker parameter value. Default value: null

Parameter	Type	Required	Example	Description
max-keys	String	No	200	The maximum number of objects to return. If the listing cannot be complete at a time because max-keys is specified, the NextMarker element is included in the response as the marker for next listing. Valid values: 1 to 1000 Default value: 100
prefix	String	No	fun	The prefix that the returned object names must contain. • The value of prefix must be smaller than 1,024 bytes in length. • If you specify a prefix to query objects, the names of the returned objects still contain the prefix. If prefix is set to a folder name in the request, the objects whose names contain this prefix are listed, including all objects and subfolders in the folder. If prefix is specified and delimiter is set to a forward slash (/), only the objects in the folder are listed. The subfolders are grouped together as a single result in CommonPrefixes. Objects and folders in the subfolders are not listed. For example, a bucket contains the following objects: fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. If prefix is set to fun/, the three objects are returned. If prefix is set to fun/ and delimiter is set to a forward slash (/), fun/test.jpg and fun/movie/ are returned. Default value: null
encoding-type	String	No	URL	The encoding type of the object name in the response. Default value: null Valid value: URL **Notice** The delimiter, marker, prefix, NextMarker, and Key values are UTF-8 encoded. If delimiter, marker, prefix, NextMarker, and Key contain control characters that are not supported by the XML 1.0 standard, you can specify encoding-type to encode Delimiter, Marker, Prefix, NextMarker, and Key in the response.

Response elements

Element	Type	Example	Description
Contents	Container	N/A	The container that stores the returned object metadata. Parent nodes: ListBucketResult
CommonPrefixes	String	N/A	If the Delimiter parameter is specified in the request, the response contains the CommonPrefixes element. Objects whose names contain the same string from the prefix to the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes. Parent nodes: ListBucketResult
Delimiter	String	/	The character used to group objects by name. If you specify the Delimiter parameter in the request, the response contains the CommonPrefixes element. Objects whose names contain the same string from the prefix to the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes. Parent nodes: ListBucketResult
EncodingType	String	N/A	The encoding type of the object name in the response. In addition, you can use the encoding-type parameter to encode the following elements in the response: Delimiter, Marker, Prefix, NextMarker, and Key. Parent nodes: ListBucketResult
DisplayName	String	user_example	The name of the object owner. Parent nodes: ListBucketResult, Contents, and Owner
ETag	String	5B3C1A2E053D763E1B002CC607C5A0FE1****	The entity tag (ETag). An ETag is created when the object is created to identify the content of an object. • If an object is created using a PutObject request, the ETag value is the MD5 hash of the object content. • If an object is created using other methods, the ETag value is the UUID of the object content. • The ETag value of an object can be used to check whether the object content is changed. However, we recommend that you do not use the ETag of an object as the MD5 hash of the object to verify data integrity. Parent nodes: ListBucketResult and Contents
ID	String	0022012****	The user ID of the bucket owner. Parent nodes: ListBucketResult, Contents, and Owner

Element	Type	Example	Description
IsTruncated	Enumerated string	false	Indicates whether the returned results are truncated. Valid values: *true* and *false* • true indicates that not all of the results are returned this time. • false indicates that all of the results are returned this time. Parent nodes: ListBucketResult
Key	String	fun/test.jpg	The key of the object. Parent nodes: ListBucketResult and Contents
LastModified	Date	2012-02-24T08:42:32.000Z	The last modified time of the object. Parent nodes: ListBucketResult and Contents
ListBucketResult	Container	N/A	The container that stores the result of the GetBucket request. Child nodes: Name, Prefix, Marker, MaxKeys, Delimiter, IsTruncated, NextMarker, and Contents Parent node: none
Marker	String	test1.txt	The name of the object after which the listing begins. Parent nodes: ListBucketResult
MaxKeys	String	100	The maximum number of returned objects in the response. Parent nodes: ListBucketResult
Name	String	oss-example	The name of the bucket. Parent nodes: ListBucketResult
Owner	Container	N/A	The container that stores the information about the bucket owner. Child nodes: DisplayName and ID Parent nodes: ListBucketResult
Prefix	String	fun/	The prefix that the names of returned objects contain. Parent nodes: ListBucketResult
Size	String	344606	The size of the returned object. Unit: byte. Parent nodes: ListBucketResult and Contents

Element	Type	Example	Description
StorageClass	String	Standard	The storage class of the object. Parent nodes: ListBucketResult and Contents

For more information about other common response headers involved in the GetBucket operation, such as `x-oss-request-id` and `Content-Type`, see Common response headers.

Examples

- Sample requests for the simple GetBucket operation

```
GET / HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Date: Fri, 24 Feb 2012 08:43:27 GMT
Authorization: OSS qn6qrrqxo2oawuk53otfjbyc:BC+oQIXVR2/ZghT7cGa0ykbo****
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 534B371674E88A4D8906****
Date: Fri, 24 Feb 2012 08:43:27 GMT
Content-Type: application/xml
Content-Length: 1866
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<ListBucketResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
<Name>oss-example</Name>
<Prefix></Prefix>
<Marker></Marker>
<MaxKeys>100</MaxKeys>
<Delimiter></Delimiter>
<IsTruncated>false</IsTruncated>
<Contents>
      <Key>fun/movie/001.avi</Key>
      <LastModified>2012-02-24T08:43:07.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
      <Owner>
          <ID>0022012****</ID>
          <DisplayName>user-example</DisplayName>
      </Owner>
</Contents>
<Contents>
      <Key>fun/movie/007.avi</Key>
      <LastModified>2012-02-24T08:43:27.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
```

```
        <Owner>
            <ID>0022012****</ID>
            <DisplayName>user-example</DisplayName>
        </Owner>
</Contents>
<Contents>
        <Key>fun/test.jpg</Key>
        <LastModified>2012-02-24T08:42:32.000Z</LastModified>
        <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
        <Type>Normal</Type>
        <Size>344606</Size>
        <StorageClass>Standard</StorageClass>
        <Owner>
            <ID>0022012****</ID>
            <DisplayName>user-example</DisplayName>
        </Owner>
</Contents>
<Contents>
        <Key>oss.jpg</Key>
        <LastModified>2012-02-24T06:07:48.000Z</LastModified>
        <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
        <Type>Normal</Type>
        <Size>344606</Size>
        <StorageClass>Standard</StorageClass>
        <Owner>
            <ID>0022012****</ID>
            <DisplayName>user-example</DisplayName>
        </Owner>
</Contents>
</ListBucketResult>
```

- Sample requests that have the prefix parameter specified

```
GET /? prefix=fun HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Date: Fri, 24 Feb 2012 08:43:27 GMT
Authorization: OSS qn6qrrqxo2oawuk53otfjbyc:BC+oQIXVR2/ZghT7cGa0ykbo****
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 534B371674E88A4D8906****
Date: Fri, 24 Feb 2012 08:43:27 GMT
Content-Type: application/xml
Content-Length: 1464
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<ListBucketResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
<Name>oss-example</Name>
<Prefix>fun</Prefix>
<Marker></Marker>
<MaxKeys>100</MaxKeys>
<Delimiter></Delimiter>
<IsTruncated>false</IsTruncated>
<Contents>
      <Key>fun/movie/001.avi</Key>
      <LastModified>2012-02-24T08:43:07.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
      <Owner>
          <ID>0022012****</ID>
          <DisplayName>user_example</DisplayName>
      </Owner>
</Contents>
<Contents>
      <Key>fun/movie/007.avi</Key>
      <LastModified>2012-02-24T08:43:27.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
      <Owner>
          <ID>0022012****</ID>
          <DisplayName>user_example</DisplayName>
      </Owner>
</Contents>
<Contents>
      <Key>fun/test.jpg</Key>
      <LastModified>2012-02-24T08:42:32.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
      <Owner>
          <ID>0022012****</ID>
          <DisplayName>user_example</DisplayName>
      </Owner>
</Contents>
</ListBucketResult>
```

- Sample requests that have the prefix and delimiter parameters specified

```
GET /? prefix=fun/&delimiter=/ HTTP/1.1
Host: oss-example.oss-cn-hangzhou.aliyuncs.com
Date: Fri, 24 Feb 2012 08:43:27 GMT
Authorization: OSS qn6qrrqxo2oawuk53otfjbyc:DNrnx7xHk3sgysx7I8U9I9IY****
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 534B371674E88A4D8906****
Date: Fri, 24 Feb 2012 08:43:27 GMT
Content-Type: application/xml
Content-Length: 712
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<ListBucketResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
<Name>oss-example</Name>
<Prefix>fun/</Prefix>
<Marker></Marker>
<MaxKeys>100</MaxKeys>
<Delimiter>/</Delimiter>
<IsTruncated>false</IsTruncated>
<Contents>
      <Key>fun/test.jpg</Key>
      <LastModified>2012-02-24T08:42:32.000Z</LastModified>
      <ETag>"5B3C1A2E053D763E1B002CC607C5A0FE1****"</ETag>
      <Type>Normal</Type>
      <Size>344606</Size>
      <StorageClass>Standard</StorageClass>
      <Owner>
          <ID>0022012****</ID>
          <DisplayName>user_example</DisplayName>
      </Owner>
</Contents>
<CommonPrefixes>
      <Prefix>fun/movie/</Prefix>
</CommonPrefixes>
</ListBucketResult>
```

- Sample requests that have the marker parameter specified

  In this example, the value of max-keys is set to 2, which indicates that the maximum number of objects to return is two.

```
GET /? max-keys=2&marker=test1.txt HTTP/1.1
Host: test-bucket-xxx.oss-cn-shenzhen.aliyuncs.com
Accept-Encoding: identity
Accept: */*
Connection: keep-alive
User-Agent: aliyun-sdk-python/2.11.0(Darwin/18.2.0/x86_64;3.4.1)
date: Tue, 26 May 2020 08:39:48 GMT
authorization: OSS LTAIB1VW9xxxxxxx:MmY11jLlO8UlAqjqHK3Ckp****
```

Sample responses

The value of NextMarker in the response is the marker for next listing.

```
HTTP/1.1 200 OK
Server: AliyunOSS
Date: Tue, 26 May 2020 08:39:48 GMT
Content-Type: application/xml
Content-Length: 1032
Connection: keep-alive
x-oss-request-id: 5ECCD5D4881816373582xxx
x-oss-server-time: 3
<? xml version="1.0" encoding="UTF-8"? >
<ListBucketResult>
  <Name>test-bucket-xxx</Name>
  <Prefix></Prefix>
  <Marker>test1.txt</Marker>
  <MaxKeys>2</MaxKeys>
  <Delimiter></Delimiter>
  <EncodingType>url</EncodingType>
  <IsTruncated>true</IsTruncated>
  <NextMarker>test100.txt</NextMarker>
  <Contents>
    <Key>test10.txt</Key>
    <LastModified>2020-05-26T07:50:18.000Z</LastModified>
    <ETag>"C4CA4238A0B923820DCC509A6F75****"</ETag>
    <Type>Normal</Type>
    <Size>1</Size>
    <StorageClass>Standard</StorageClass>
    <Owner>
      <ID>1305433xxx</ID>
      <DisplayName>1305433xxx</DisplayName>
    </Owner>
  </Contents>
  <Contents>
    <Key>test100.txt</Key>
    <LastModified>2020-05-26T07:50:20.000Z</LastModified>
    <ETag>"C4CA4238A0B923820DCC509A6F75****"</ETag>
    <Type>Normal</Type>
    <Size>1</Size>
    <StorageClass>Standard</StorageClass>
    <Owner>
      <ID>1305433xxx</ID>
      <DisplayName>1305433xxx</DisplayName>
    </Owner>
  </Contents>
</ListBucketResult>
```

6.1.1.5.8. GetBucketAcl

You can call this operation to obtain the access control list (ACL) of a bucket.

Request structure

```
GET /? acl HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketACL operation, see Common request headers.

Response elements

Element	Type	Example	Description
AccessControlPolicy	Container	N/A	The container that contains the result of the GetBucketACL request.
Owner	Container	N/A	The container that stores the information about the bucket owner.
ID	String	0022012****	The user ID of the bucket owner.
DisplayName	String	0022012****	The name of the bucket owner, which is the same as the user ID.
AccessControlList	Container	N/A	The container that contains the ACL information.
Grant	Enumerated string	public-read	The ACL for the bucket. Valid values: private, public-read, and public-read-write

Examples

Sample requests

```
GET /? acl HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 04:11:23 GMT
Authorization: OSS q***c:C***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***B
Date: Fri, 24 Feb 2012 04:11:23 GMT
Content-Length: 253
Content-Tupe: application/xml
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" ? >
<AccessControlPolicy>
    <Owner>
        <ID>0022012****</ID>
        <DisplayName>0022012****</DisplayName>
    </Owner>
    <AccessControlList>
        <Grant>public-read</Grant>
    </AccessControlList>
</AccessControlPolicy>
```

6.1.1.5.9. GetBucketLocation

You can call this operation to view the location information about the data center to which a bucket belongs.

Request structure

```
GET /? location HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketLocation operation, see Common request headers.

Response elements

Element	Type	Example	Description
LocationConstraint	String	oss-cn-hangzhou	The region to which the bucket belongs.

Examples

Sample requests

```
Get /? location HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 04 May 2012 05:31:04 GMT
Authorization: OSS q***c:c***=
```

Sample responses

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Fri, 15 Mar 2013 05:31:04 GMT
Connection: keep-alive
Content-Length: 90
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<LocationConstraint xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">oss-cn-hangzhou</Locati
onConstraint >
```

6.1.1.5.10. GetBucketInfo

You can call this operation to view the information about a bucket.

You can view the following information when you call GetBucketInfo:

- The time when the bucket was created
- The public endpoint
- The internal endpoint
- The bucket owner information
- The bucket access control list (ACL)

Request structure

```
GET /? bucketInfo HTTP/1.1
Host: BucketName.oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketInfo operation, see Common request headers.

Response elements

Element	Type	Example	Description
BucketInfo	Container	N/A	The container that stores the bucket information content.
Bucket	Container		The container that stores the specific information about the bucket.
CreationDate	Date	2013-07-31T10:56:21.000Z	The time when the bucket was created.

Element	Type	Example	Description
ExtranetEndpoint	String	oss-cn-hangzhou.aliyuncs.com	The public endpoint.
IntranetEndpoint	String	oss-cn-hangzhou-internal.aliyuncs.com	The internal endpoint.
Location	String	cn-hangzhou	The region of the data center to which the bucket belongs.
Name	String	oss-example	The name of the bucket.
Owner	Container	N/A	The container that stores the information about the bucket owner.
ID	String	2***3	The user ID of the bucket owner.
DisplayName	String	2***3	The name of the bucket owner, which is the same as the user ID.
AccessControlList	Container	N/A	The container that contains the ACL information.
Grant	Enumeration	private	The ACL for the bucket. Valid values: private, public-read, and public-read-write

Examples

Sample requests

```
Get /? bucketInfo HTTP/1.1
Host: BucketName.oss.example.com
Date: Sat, 12 Sep 2015 07:51:28 GMT
Authorization: OSS q***c: B***=
```

Sample success responses when the information about a bucket is obtained

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Sat, 12 Sep 2015 07:51:28 GMT
Connection: keep-alive
Content-Length: 531
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<BucketInfo>
  <Bucket>
    <CreationDate>2013-07-31T10:56:21.000Z</CreationDate>
    <ExtranetEndpoint>oss-cn-hangzhou.aliyuncs.com</ExtranetEndpoint>
    <IntranetEndpoint>oss-cn-hangzhou-internal.aliyuncs.com</IntranetEndpoint>
    <Location>cn-hangzhou</Location>
    <Name>oss-example</Name>
    <Owner>
      <DisplayName>2***3</DisplayName>
      <ID>2***3</ID>
    </Owner>
    <AccessControlList>
      <Grant>private</Grant>
    </AccessControlList>
  </Bucket>
</BucketInfo>
```

Sample responses when the specified bucket is not found

```
HTTP/1.1 404
x-oss-request-id: 5***B
Date: Sat, 12 Sep 2015 07:51:28 GMT
Connection: keep-alive
Content-Length: 308
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<Error>
  <Code>NoSuchBucket</Code>
  <Message>The specified bucket does not exist. </Message>
  <RequestId>5***4</RequestId>
  <HostId>nosuchbucket.oss.example.com</HostId>
  <BucketName>nosuchbucket</BucketName>
</Error>
```

Sample responses when you are not authorized to access information about a bucket

```
HTTP/1.1 403
x-oss-request-id: 5***C
Date: Sat, 12 Sep 2015 07:51:28 GMT
Connection: keep-alive
Content-Length: 209
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<Error>
  <Code>AccessDenied</Code>
  <Message>AccessDenied</Message>
  <RequestId>5***E</RequestId>
  <HostId>BucketName.oss.example.com</HostId>
</Error>
```

6.1.1.5.11. GetBucketLogging

You can call this operation to view the logging configurations of a bucket.

Request structure

```
GET /? logging HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketLogging operation, see Common request headers.

Response elements

Element	Type	Example	Description
BucketLoggingStatus	Container	N/A	The container that stores the logging status information.
LoggingEnabled	Container	N/A	The container that stores the access log information. This element is required only when logging is enabled.
TargetBucket	String	mybucketlogs	The bucket that stores access logs.
TargetPrefix	String	mybucket-access_log/	The prefix of the access log object.

Examples

Sample requests

```
Get /? logging HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 04 May 2012 05:31:04 GMT
Authorization: OSS q***c:c***=
```

Sample responses for buckets that have logging rules configured

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Fri, 04 May 2012 05:31:04 GMT
Connection: keep-alive
Content-Length: 210
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<BucketLoggingStatus xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <LoggingEnabled>
        <TargetBucket>mybucketlogs</TargetBucket>
        <TargetPrefix>mybucket-access_log/</TargetPrefix>
    </LoggingEnabled>
</BucketLoggingStatus>
```

Sample responses for buckets that have no logging rules configured

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Fri, 04 May 2012 05:31:04 GMT
Connection: keep-alive
Content-Length: 110
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<BucketLoggingStatus xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
</BucketLoggingStatus>
```

6.1.1.5.12. GetBucketWebsite

You can call this operation to view the static website hosting status of a bucket.

Request structure

```
GET /? website HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketWebsite operation, see Common request headers.

Response elements

Element	Type	Example	Description
ErrorDocument	Container	N/A	The parent element of the Key child element.
IndexDocument	Container	N/A	The parent element of the Suffix child element.
Key	String	error.html	The file name used when the 404 HTTP status code is returned.
Suffix	String	index.html	The index file name added when a folder URL is returned. This element cannot be empty or contain a slash (/). For example, if the index file is set to index.html, regionid.example.com/mybucket/mydir/ included in a request is converted into regionid.example.com/mybucket/index.html by default.
WebsiteConfiguration	Container	N/A	The container for the request.

Examples

Sample requests

```
Get /? website HTTP/1.1
Host: BucketName.regionid.example.com
Date: Thu, 13 Sep 2012 07:51:28 GMT
Authorization: OSS q***c:B***=
```

Sample success responses

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Thu, 13 Sep 2012 07:51:28 GMT
Connection: keep-alive
Content-Length: 218
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<WebsiteConfiguration xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
<IndexDocument>
<Suffix>index.html</Suffix>
    </IndexDocument>
    <ErrorDocument>
        <Key>error.html</Key>
    </ErrorDocument>
</WebsiteConfiguration>
```

Sample error responses

```
HTTP/1.1 404
x-oss-request-id: 5***B
Date: Thu, 13 Sep 2012 07:56:46 GMT
Connection: keep-alive
Content-Length: 308
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<Error xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Code>NoSuchWebsiteConfiguration</Code>
    <Message>The specified bucket does not have a website configuration. </Message>
    <BucketName>oss-example</BucketName>
    <RequestId>5***F</RequestId>
    <HostId>BucketName.regionid.example.com</HostId>
</Error>
```

6.1.1.5.13. GetBucketReferer

You can call this operation to view the Referer configurations of a bucket.

Request structure

```
GET /? referer HTTP/1.1
Host: BucketName.oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketReferer operation, see Common request headers.

Response elements

Element	Type	Example	Description
RefererConfiguration	Container	N/A	The container that contains the Referer configurations.
AllowEmptyReferer	Enumerated string	true	Specifies whether to allow a request whose Refer field is empty. Valid values: true and false Default value: true
RefererList	Container	N/A	The container that contains the Referer whitelist.
Referer	String	http://www.aliyun.com	The Referer whitelist.

Examples

Sample requests

```
Get /? referer HTTP/1.1
Host: BucketName.oss.example.com
Date: Thu, 13 Sep 2012 07:51:28 GMT
Authorization: OSS q***: B***=
```

Sample responses to requests that include the Referer element

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Thu, 13 Sep 2012 07:51:28 GMT
Connection: keep-alive
Content-Length: 218
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<RefererConfiguration>
<AllowEmptyReferer>true</AllowEmptyReferer >
    <RefererList>
        <Referer>http://www.aliyun.com</Referer>
        <Referer>https://www.aliyun.com</Referer>
        <Referer>http://www. *.com</Referer>
        <Referer>https://www.?.aliyuncs.com</Referer>
    </RefererList>
</RefererConfiguration>
```

Sample responses to requests that exclude the Referer element

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Thu, 13 Sep 2012 07:56:46 GMT
Connection: keep-alive
Content-Length: 308
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<RefererConfiguration>
<AllowEmptyReferer>true</AllowEmptyReferer >
< RefererList />
</RefererConfiguration>
```

6.1.1.5.14. GetBucketLifecycle

You can call this operation to view the lifecycle configurations of a bucket.

```
GET /? lifecycle HTTP/1.1
Host: BucketName.oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

For more information about the common request headers involved in the GetBucketLifecycle operation, see Common request headers.

Response elements

Element	Type	Example	Description
CreatedBeforeDate	String	2002-10-11T00:00:00.000Z	The date based on which to run lifecycle rules. OSS performs the specified operation on data whose last modified date is before this date. Specify the time in the ISO 8601 standard. The time must be at UTC 00:00:00. For example, 2002-10-11T00:00:00.000Z indicates that objects last updated before 2002-10-11T00:00: 00.000Z are deleted or the storage classes of these objects are converted to another storage class. Objects last updated at or after this time are not deleted or their storage classes are not converted to another storage class.
Days	Positive integer	1	The number of days within which objects can be retained after the objects are last modified.
Expiration	Container	N/A	The delete operation on the objects based on the lifecycle rule.
AbortMultipartUpload	Container	N/A	The delete operation on the multipart upload tasks that are incomplete.
ID	String	rule1	The unique ID of a lifecycle rule. The ID can be a maximum of 255 bytes in length. If the value of this parameter is null or not specified, OSS generates a unique ID for the lifecycle rule.
LifecycleConfiguration	Container	N/A	The container that stores lifecycle configurations. The container can contain up to 1,000 rules.
Prefix	String	logs/	The prefix of names of objects to which the rule applies. • If Prefix is specified, this rule applies only to objects whose names contain the specified prefix in the bucket. • If Prefix is not specified, this rule applies to all objects in the bucket.
Rule	Container	N/A	Identifies the rule.
Status	String	Enabled	Specifies whether to run the rule. A value of Enabled indicates that OSS runs the rule. A value of Disabled indicates that OSS ignores the rule.

Examples

Sample requests

```
Get /? lifecycle HTTP/1.1
Host: BucketName.oss.example.com
Date: Mon, 14 Apr 2014 01:17:29 GMT
Authorization: OSS q***:c***=
```

Sample responses for buckets that have lifecycle rules configured

```
HTTP/1.1 200
x-oss-request-id: 5***B
Date: Mon, 14 Apr 2014 01:17:29 GMT
Connection: keep-alive
Content-Length: 255
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<LifecycleConfiguration>
<Rule>
 <ID>rule1</ID>
 <Prefix>logs/</Prefix>
 <Status>Enabled</Status>
 <Expiration>
 <Days>1</Days>
 </Expiration>
 <AbortMultipartUpload>
 <Days>1</Days>
 </AbortMultipartUpload>
 </Rule>
 <Rule>
 <ID>rule2</ID>
 <Prefix>backup/</Prefix>
 <Status>Enabled</Status>
 <Expiration>
 <CreatedBeforeDate>2014-10-11T00:00:00.000Z</CreatedBeforeDate>
 </Expiration>
 <AbortMultipartUpload>
 <CreatedBeforeDate>2014-10-11T00:00:00.000Z</CreatedBeforeDate>
 </AbortMultipartUpload>
 </Rule>
</LifecycleConfiguration>
```

Sample responses for buckets that have no lifecycle rules configured

```
HTTP/1.1 404
x-oss-request-id: 5***B
Date: Mon, 14 Apr 2014 01:17:29 GMT
Connection: keep-alive
Content-Length: 278
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<Error>
  <BucketName>oss-example</BucketName>
  <Code>NoSuchLifecycle</Code>
  <Message>No Row found in Lifecycle Table. </Message>
  <RequestId>5***9</RequestId>
  <HostId> BucketName.oss.example.com</HostId>
</Error>
```

6.1.1.5.15. DeleteBucket

You can call this operation to delete a bucket.

Request structure

```
DELETE / HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Usage notes

- To prevent unexpected data loss, OSS does not allow users to delete non-empty buckets.
- If you delete a non-empty bucket, OSS returns 409 Conflict and error code BucketNotEmpty.
- Only the bucket owner can delete the bucket. If you delete a bucket when you are not authorized, OSS returns 403 Forbidden and error code AccessDenied.

Request headers

The request headers involved in the DeleteBucket operation contain only common request headers. For more information, see Common request headers.

Response headers

The response headers involved in the DeleteBucket operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE / HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 05:31:04 GMT
Authorization: OSS q***:c***=
```

Sample responses

```
HTTP/1.1 204 No Content
x-oss-request-id: 534B371674E88A4D8906008B
Date: Fri, 24 Feb 2012 05:31:04 GMT
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.5.16. DeleteBucketLogging

You can call this operation to disable logging for a bucket.

Request structure

```
DELETE /? logging HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

The request headers involved in the DeleteBucketLogging operation contain only common request headers. For more information, see Common request headers.

Response headers

The response headers involved in the DeleteBucketLogging operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE /? logging HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 05:35:24 GMT
Authorization: OSS q***c:6***=
```

Sample responses

```
HTTP/1.1 204 No Content
x-oss-request-id: 5***B
Date: Fri, 24 Feb 2012 05:35:24 GMT
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.5.17. DeleteBucketWebsite

You can call this operation to disable static website hosting for a bucket.

Request structure

```
DELETE /? website HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Request headers involved in the DeleteBucketWebsite operation contain only common request headers. For more information, see Common request headers.

Response headers

Response headers involved in the DeleteBucketWebsite operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE /? website HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 05:45:34 GMT
Authorization: OSS q***:L***=
```

Sample responses

```
HTTP/1.1 204 No Content
x-oss-request-id: 5***B
Date: Fri, 24 Feb 2012 05:45:34 GMT
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.5.18. DeleteBucketLifecycle

You can call this operation to delete the lifecycle configurations for a specific bucket.

Request structure

```
DELETE /? lifecycle HTTP/1.1
Host: BucketName.oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Request headers involved in the DeleteBucketLifecycle operation contain only common request headers. For more information, see Common request headers.

Response headers

Response headers involved in the DeleteBucketLifecycle operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE /? lifecycle HTTP/1.1
Host: BucketName.oss.example.com
Date: Mon, 14 Apr 2014 01:17:35 GMT
Authorization: OSS q***:6***=
```

Sample responses

```
HTTP/1.1 204 No Content
x-oss-request-id: 5***B
Date: Mon, 14 Apr 2014 01:17:35 GMT
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.6. Object-relevant operations

6.1.1.6.1. PutObject

You can call this operation to upload objects.

Request structure

```
PUT /ObjectName HTTP/1.1
Content-Length: ContentLength
Content-Type: ContentType
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Usage notes

When you call the PutObject operation, take note of the following items:

- PutObject cannot be used to upload objects larger than 5 GB.
- By default, if you upload an object that has the same name as that of an accessible existing object, the existing object is overwritten by the uploaded object and 200 OK is returned.
- OSS does not use folders. All elements are stored as objects. You can create a simulated folder by

creating an object whose name ends with a forward slash (/) and that is 0 KB in size.

- To ensure data integrity, OSS provides multiple methods for you to check the MD5 hashes of the data. To perform MD5 verification based on the Content-MD5 header, add the header to the request. When the Content-MD5 header value is specified in a request, OSS calculates the MD5 hash of the sent data and compares the calculated MD5 hash with the Content-MD5 value specified in the request. If the two values do not match, the operation fails and 400 (Bad Request) is returned.

Request headers

Header	Type	Required	Example	Description
Cache-Control	String	No	no-cache	The web page caching behavior that is specified when the object is downloaded. For more information, visit RFC 2616.
Content-Disposition	String	No	attachment;filename=oss_download.jpg	The presentational information of the object when the object is downloaded. For more information, visit RFC 2616.
Content-Encoding	String	No	utf-8	The content encoding type of the object during the download. For more information, visit RFC 2616. Type: string Default value: null
Content-MD5	String	No	uk8Os/oShU2MMhcajpeAVA==	The Content-MD5 value of the message content (excluding headers). The value is obtained by calculating the 128-bit hash value and then encoding the value in Base64 based on RFC 1864. This request header can be used to check the message validity. The message content is valid if the received message content is the same as the content that is sent. Although this request header is optional, we recommend that you use it for end-to-end checks.
Expires	String	No	Fri, 28 Feb 2012 05:38:42 GMT	The time period after which the response is considered expired. For more information, visit RFC 2616. **Note** OSS does not limit or verify this value.

Header	Type	Required	Example	Description
x-oss-server-side-encryption	String	No	KMS	The server-side encryption algorithm that is used when OSS creates the object. Valid values: *AES256* and *KMS* If you specify this parameter, this parameter is returned in the response header and the uploaded object is encrypted and stored. When you download the encrypted object, the x-oss-server-side-encryption header is included in the response and the header value is set to the algorithm used to encrypt the object.
x-oss-server-side-data-encryption	String	No	SM4	The algorithm used to encrypt objects. If this element is not specified, objects are encrypted by using AES-256. This parameter is valid only when x-oss-server-side-encryption is set to KMS. Valid values: SM4
x-oss-server-side-encryption-key-id	String	No	3dea0cae-5fd6-4bf8-8574-87c557******	The ID of the customer master key (CMK) hosted in KMS. This parameter is valid only when x-oss-server-side-encryption is set to KMS.
x-oss-object-acl	String	No	private	The ACL of the object when the object is created. Valid values: public-read, private, and public-read-write

Response headers

Response headers involved in the PutObject operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT /oss.jpg HTTP/1.1
Host: ***.regionid.example.com
Cache-control: no-cache
Expires: Fri, 28 Feb 2012 05:38:42 GMT
Content-Encoding: utf-8
Content-Disposition: attachment;filename=oss_download.jpg
Date: Fri, 24 Feb 2012 06:03:28 GMT
Content-Type: image/jpg
Content-Length: 344606
Authorization: OSS q***:k***=
[344606 bytes of object data]
```

Sample responses

```
HTTP/1.1 200 OK
Server: AliyunOSS
Date: Sat, 21 Nov 2015 18:52:34 GMT
Content-Length: 0
Connection: keep-alive
x-oss-request-id: 5***A
x-oss-bucket-version: 1***9
ETag: "A***2"
```

6.1.1.6.2. GetObject

You can call this operation to query an object. Before you call this operation, you must have read permissions on the object.

Detail analysis

- You can set the Range parameter in the GetObject request to implement resumable data transfer. We recommend that you use this parameter when you upload large objects.
- If you set Range in the request, the response contains the length of the entire object and the range of bytes copied for this operation. For example, Content-Range: bytes 0-9/44 indicates that the length of the entire object is 44 bytes. The range of copied bytes is from byte 0 to byte 9. If the value of Range is invalid, the entire object is returned and the response returned by OSS does not include Content-Range.
- Parameters in the GetObject request cannot be customized for OSS to return corresponding headers in the response if the access is anonymous.
- If this object is encrypted by using a server-side encryption algorithm based on entropy encoding, OSS automatically returns the decrypted object and x-oss-server-side-encryption in the response when OSS receives the GetObject request. The value of x-oss-server-side-encryption indicates the server-side encryption algorithm of the object.
- To obtain an object compressed in the GZIP format, add Accept-Encoding:gzip to the display mode in the request. OSS determines whether to return data compressed in the GZIP format based on the Content-Type value and size of the object. If the object is compressed in the GZIP format, the response returned by OSS does not include the ETag value of the object. OSS supports GZIP for objects whose Content-Type header is set to one of the following values: HTML, JavaScript, CSS, XML, RSS, and JSON. The object must be at least 1 KB in size.

Request structure

```
GET /ObjectName HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
Range: bytes=ByteRange (optional)
```

Request parameters

OSS allows you to customize parameters in the GET request for OSS to return corresponding headers in the response if the GET request includes a signature. The following table describes the headers.

Header	Type	Required	Example	Description
response-content-type	String	No	text	Specifies the content-type header of the response.
response-content-language	String	No	Chinese characters	Specifies the content-language header of the response.
response-expires	String	No	Fri, 24 Feb 2012 17:00:00 GMT	Specifies the expires header of the response.
response-cache-control	String	No	No-cache	Specifies the cache-control header of the response. Type: string Default value: null
response-content-disposition	String	No	attachment; filename:testing.txt	Specifies the content-disposition header of the response. Type: string Default value: null
response-content-encoding	String	No	utf-8	Specifies the content-encoding header of the response. Type: string Default value: null

Request headers

Header	Type	Required	Example	Description

Header	Type	Required	Example	Description
Range	String	No	bytes=100-900	The range of data you want to return. For example, if you specify bytes=0-9, OSS transfers byte 0 to byte 9, a total of 10 bytes.
If-Modified-Since	String	No	Fri, 13 Nov 2015 14:47:53 GMT	The object transfer condition. If the specified time is earlier than the actual modified time of the object, the system transfers the object and returns 200 OK. Otherwise, the system returns 304 Not Modified. The time must be in GMT.
If-Unmodified-Since	String	No	Fri, 13 Nov 2015 14:47:53 GMT	The object copy condition. If the specified time is later than or equal to the actual modified time of the object, OSS transfers the object and returns 200 OK. Otherwise, OSS returns 412 Precondition Failed. The time must be in GMT.
If-Match	String	No	5B3C1A2E0563E1B002CC607C*****	The object transfer condition. If the specified ETag value of the object matches the actual ETag value, OSS transfers the object and returns 200 OK. Otherwise, OSS returns 412 Precondition Failed.
If-None-Match	String	No	5B3C1A2E0563E1B002CC607C*****	The object transfer condition. If the specified ETag value does not match the actual ETag value, OSS transfers the object and returns 200 OK. Otherwise, OSS returns 304 Not Modified. Type: string Default value: null

Response headers

If the requested object is a symbolic link, the content of the object is returned. Response headers `Content-Length`, `ETag`, and `Content-Md5` indicate the metadata of the requested object. The `Last-Modified` header indicates the later one of the time points when the requested object and the symbolic link are last modified. All other headers indicate the metadata of the symbolic link.

Header	Type	Example	Description
x-oss-server-side-encryption	String	x-oss-server-side-encryption	If the requested object is encrypted by using a server-side encryption algorithm based on entropy encoding, OSS automatically decrypts and returns the object after OSS receives the GetObject request. OSS includes x-oss-server-side-encryption in the response to indicate the encryption algorithm that is used to encrypt the object on the server.

Examples

Sample requests

```
GET /oss.jpg HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 06:38:30 GMT
Authorization: OSS q***:U***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 3***1
x-oss-object-type: Normal
Date: Fri, 24 Feb 2012 06:38:30 GMT
Last-Modified: Fri, 24 Feb 2012 06:07:48 GMT
ETag: "5***E "
Content-Type: image/jpg
Content-Length: 344606
Server: AliyunOSS
[344606 bytes of object data]
```

Sample requests that include the Range parameter

```
GET //oss.jpg HTTP/1.1
Host:***. regionid.example.com
Date: Fri, 28 Feb 2012 05:38:42 GMT
Range: bytes=100-900
Authorization: OSS q***:q***=
```

Sample responses

```
HTTP/1.1 206 Partial Content
x-oss-request-id: 2***9
x-oss-object-type: Normal
Date: Fri, 28 Feb 2012 05:38:42 GMT
Last-Modified: Fri, 24 Feb 2012 06:07:48 GMT
ETag: "5***E "
Accept-Ranges: bytes
Content-Range: bytes 100-900/344606
Content-Type: image/jpg
Content-Length: 801
Server: AliyunOSS
[801 bytes of object data]
```

Sample requests that include custom headers to return in responses

```
GET /oss.jpg? response-expires=Thu%2C%2001%20Feb%202012%2017%3A00%3A00%20GMT& response-cont
ent-type=text&response-cache-control=No-cache&response-content-disposition=attachment%253B%
2520filename%253Dtesting.txt&response-content-encoding=utf-8&response-content-language=%E4%
B8%AD%E6%96%87 HTTP/1.1
Host: ***.regionid.example.com:
Date: Fri, 24 Feb 2012 06:09:48 GMT
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
x-oss-object-type: Normal
Date: Fri, 24 Feb 2012 06:09:48 GMT
Last-Modified: Fri, 24 Feb 2012 06:07:48 GMT
ETag: "5***E "
Content-Length: 344606
Connection: keep-alive
Content-disposition: attachment; filename:testing.txt
Content-language: Chinese
Content-encoding: utf-8
Content-type: text
Cache-control: no-cache
Expires: Fri, 24 Feb 2012 17:00:00 GMT
Server: AliyunOSS
[344606 bytes of object data]
```

6.1.1.6.3. CopyObject

You can call this operation to copy objects within a bucket or between different buckets in the same region.

To create a copy for an existing object in OSS, you can send a PUT request to OSS, and add x-oss-copy-source to the PUT request to specify the source object you want to copy. OSS determines that this is a copy operation and performs the copy operation on the server side. If the copy operation is successful, OSS returns the information of the new object to you. You can call this operation to copy objects smaller than 1 GB. To copy an object larger than 1 GB, you must use multipart upload. For more information, see UploadPartCopy.

Usage notes

- If the source object URL is the same as the destination object URL during the CopyObject operation, the system replaces the metadata of the source object regardless of the value of x-oss-metadata-directive.
- Request headers for the CopyObject operation start with x-oss- and must be added to a string-to-sign.
- If the x-oss-server-side-encryption header is specified in the CopyObject request, the destination object is encrypted on the server after the CopyObject operation is performed regardless of whether the source object is encrypted on the server. In addition, the CopyObject response header contains the x-oss-server-side-encryption header, the value of which is set to the encryption algorithm of the destination object. When this destination object is downloaded, the response also contains the x-oss-server-side-encryption header, the value of which is set to the encryption algorithm of this destination object. If the x-oss-server-side-encryption request header is not specified for the CopyObject operation, the destination object is the data that is not encrypted on the server even if the source object is encrypted on the server.
- Objects created by using the AppendObject operation cannot be copied.

Request structure

```
PUT /DestObjectName HTTP/1.1
Host: DestBucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
x-oss-copy-source: /SourceBucketName/SourceObjectName
```

Request headers

Header	Type	Required	Example	Description
x-oss-copy-source	String	Yes	/oss-example/oss.jpg	The address of the source object. Default value: null
x-oss-copy-source-if-match	String	No	5B3C1A2E053D763E1B002CC607C5****	If the ETag value of the source object is the same as the ETag value specified in the request, OSS copies the object and returns 200 OK. Otherwise, OSS returns 412 Precondition Failed, which indicates that the preprocessing has failed. Default value: null

Header	Type	Required	Example	Description
x-oss-copy-source-if-none-match	String	Failed	5B3C1A2E053D763E1B002CC607C5****	If the ETag value of the source object is different from the ETag value specified in the request, OSS copies the object and returns 200 OK. Otherwise, OSS returns 304 Not Modified, which indicates that the preprocessing has failed. Default value: null
x-oss-copy-source-if-unmodified-since	String	No	2019-04-09T07:01:56.000Z	If the specified time is the same as or later than the modified time of the object, OSS copies the object and returns 200 OK. Otherwise, OSS returns 412 Precondition Failed, which indicates that the preprocessing has failed. Default value: null
x-oss-copy-source-if-modified-since	String	No	2019-04-09T07:01:56.000Z	If the source object is modified after the specified time, OSS copies the object. Otherwise, OSS returns 304 Not Modified, which indicates that the preprocessing has failed. Default value: null
x-oss-metadata-directive	String	No	COPY	The method used to set the metadata of the destination object. Default value: COPY. Valid values: • *COPY*: The tag of the source object is copied to the destination object. x-oss-server-side-encryption of the source object is not copied to the destination object. The method to encrypt the destination object depends on whether x-oss-server-side-encryption is specified in the CopyObject request. • *REPLACE*: The metadata specified in the request is used, instead of the metadata of the source object.

Header	Type	Required	Example	Description
x-oss-server-side-encryption	String	No	AES256	The entropy coding-based encryption algorithm that OSS uses to encrypt an object when you create the object. Valid values: *AES256* and *KMS*. • If the x-oss-server-side-encryption header is not specified in the CopyObject request, the destination object is not encrypted on the server regardless of whether the source object has been encrypted on the server. • If the x-oss-server-side-encryption header is specified in the CopyObject request, the destination object is encrypted on the server after the CopyObject operation is performed regardless of whether the source object has been encrypted on the server. In addition, the CopyObject response header contains x-oss-server-side-encryption, the value of which is set to the encryption algorithm of the destination object. When the destination object is downloaded, the x-oss-server-side-encryption header is included in the response header and its value is set to the algorithm used to encrypt the object.
x-oss-server-side-encryption-key-id	String	No	9468da86-3509-4f8d-a61e-6eab1eac****	The ID of the customer master key (CMK) hosted in KMS. This parameter is valid only when x-oss-server-side-encryption is set to KMS.
x-oss-object-acl	String	No	private	The ACL configured when OSS creates the destination object. Valid values: *public-read*, *private*, *public-read-write*, and *default*.

Examples of common request headers involved in the CopyObject operation: Host and Date. For more information, see Common request headers.

Response headers

Examples of common response headers involved in the CopyObject operation: Content-Length and Connection. For more information, see Common response headers.

Response elements

Element	Type	Example	Description
CopyObjectResult	Container	N/A	The result of the CopyObject operation. Default value: null
ETag	String	5B3C1A2E053D763E1B002CC607C5***	The ETag value of the destination object. Parent nodes: CopyObjectResult
LastModified	String	Fri, 24 Feb 2012 07:18:48 GMT	The time when the destination object was last modified. Parent nodes: CopyObjectResult

Examples

Sample requests

```
PUT /copy_oss.jpg HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 07:18:48 GMT
x-oss-copy-source: /oss-example/oss.jpg
Authorization: OSS q***:g***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
Content-Type: application/xml
Content-Length: 193
Connection: keep-alive
Date: Fri, 24 Feb 2012 07:18:48 GMT
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<CopyObjectResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
 <LastModified>Fri, 24 Feb 2012 07:18:48 GMT</LastModified>
 <ETag>"5***E"</ETag>
</CopyObjectResult>
```

6.1.1.6.4. AppendObject

You can call this operation to upload an object by appending the object to an existing object. Objects created by using the AppendObject operation are append objects, whereas objects uploaded by using the PutObject operation are normal objects.

Usage notes

- You can perform AppendObject only for an append object. For example, if a normal object that shares the same name already exists and AppendObject is called, OSS returns HTTP status code 409 and error code ObjectNotAppendable.
- If you perform a PutObject operation on an existing append object, the append object is overwritten

by a new normal object.

- After HeadObject is performed, OSS returns x-oss-object-type to indicate the type of the object. If HeadObject is performed on an append object, the object type is Appendable. If HeadObject is performed on an append object, OSS also returns x-oss-next-append-position and x-oss-hash-crc64ecma.
- In the response in XML to the GetBucket (ListObjects) request, the type of an append object is set to Appendable.
- You can neither use CopyObject to copy an append object nor change the server-side encryption attribute of this object. You can use CopyObject to modify the user metadata of this object.
- The append and position parameters belong to CanonicalizedResource that must be included in signatures.

Request structure

```
POST /ObjectName? append&position=Position HTTP/1.1
Content-Length: ContentLength
Content-Type: ContentType
Host: BucketName.oss.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Header	Type	Required	Example	Description
append	String	Yes	N/A	The request that is sent to perform an AppendObject operation. Each time an AppendObject operation is performed, the last modified time of this object is updated.

Header	Type	Required	Example	Description
position	String	Yes	0	The position from which the AppendObject operation starts. Each time an AppendObject operation succeeds, x-oss-next-append-position in the response header specifies the position of the next AppendObject request. The value of position in the first AppendObject operation must be 0. The value of position in the subsequent operation is the current object length. For example, if the value of position specified in the first AppendObject request is 0, and the value of content-length is 65536, the value of position specified in the second AppendObject request must be set to 65536. • If the value of position is 0 and an object with the same name does not exist, you can set headers, such as x-oss-server-side-encryption in the AppendObject request in the same way as you set in a PutObject request. If you add a correct x-oss-server-side-encryption header in an AppendObject request in which the value of position is 0, the x-oss-server-side-encryption header is also included in the response header. You can initiate a CopyObject request to modify the metadata of the object in subsequent operations. • If the position value is correct and the content with a length of 0 is appended to an existing append object, the status of the object does not change.
Cache-control	String	No	no-cache	The web page caching behavior for the object. For more information, see RFC 2616. Default value: null
Content-Disposition	String	No	attachment;filename=oss_download.jpg	The name of the object when the object is downloaded. For more information, see RFC 2616. Default value: null
Content-Encoding	String	No	utf-8	The object encoding format of the object. For more information, see RFC 2616. Default value: null

Header	Type	Required	Example	Description
Content-MD5	String	No	ohhnqLBJFiKkPSBO1eNaUA==	The Content-MD5 header value is a string calculated by using the MD5 algorithm. This header is used to check whether the content of the received message is the same as that of the sent message. To obtain the value of the Content-MD5 header, calculate a 128-bit byte array based on the message content, rather than the header, and then encode the byte array in Base64. Default value: null Limits: none
Expires	GMT	No	Wed, 08 Jul 2015 16:57:01 GMT	The time period after which the response is considered expired. For more information, see RFC 2616. Default value: null
x-oss-server-side-encryption	String	No	AES256	The method used to encrypt objects on the OSS server. Valid values: • *AES256*: uses keys managed by OSS for encryption and decryption (SSE-OSS). • *KMS*: uses CMKs managed by KMS for encryption and decryption. • *SM4*: uses the SM4 block cipher algorithm for encryption and decryption.
x-oss-object-acl	String	No	private	The ACL for the object. Valid values: • *public-read*: Only the bucket owner can perform write operations on objects in the bucket. Other users, including anonymous users, can perform only read operations on the objects in the bucket. • *private*: Only the bucket owner or authorized users can read from and write to the objects in the bucket. Other users, including anonymous users, cannot access objects in the bucket. • *public-read-write*: All users, including anonymous users, can perform read and write operations on objects in the bucket. Fees incurred by these operations are paid by the bucket owner. Use this ACL policy only when necessary.

Header	Type	Required	Example	Description
x-oss-meta-*	String	No	x-oss-meta-location	You can add parameters prefixed with x-oss-meta-* when you create an append object by calling the AppendObject operation. However, you cannot add these parameters when you append objects to an existing append object. Parameters prefixed with x-oss-meta-* are considered metadata. You can configure multiple parameters prefixed with x-oss-meta-* for an object. However, the total size of metadata cannot exceed 8 KB. The name of parameters prefixed with x-oss-meta-* can contain hyphens (-), digits, and letters. Uppercase letters are converted to lowercase letters. Other characters such as underscores (_) are not supported.

For more information about the common request headers included in AppendObject requests, see Common request headers.

Response headers

Header	Type	Example	Description
x-oss-next-append-position	64-bit integer	1717	The position that must be provided in the next request, which is the current object length. This header is returned when a successful message is returned for an AppendObject request, or when the 409 HTTP status code is returned because the position and the object length do not match.
x-oss-hash-crc64ecma	64-bit integer	3231342946509354535	The 64-bit CRC value of the object. This value is calculated based on the ECMA-182 standard.

For more information about other common response headers involved in the AppendObject operation, see Common response headers.

Method for calculating the 64-bit CRC value

The CRC-64 value of an append object is calculated based on the ECMA-182 standard. You can calculate the CRC-64 by using the following methods:

- Use the Boost CRC module

```
typedef boost::crc_optimal<64, 0x42F0E1EBA9EA3693ULL, 0xffffffffffffffffULL, 0xffffffffffffffffULL, true, true> boost_ecma;
uint64_t do_boost_crc(const char* buffer, int length)
{
    boost_ecma crc;
    crc.process_bytes(buffer, length);
    return crc.checksum();
}
```

- Use the crcmod function in Python

```
do_crc64 = crcmod.mkCrcFun(0x142F0E1EBA9EA3693L, initCrc=0L, xorOut=0xffffffffffffffffL,
rev=True)
print do_crc64("123456789")
```

Examples

Sample requests

```
POST /oss.jpg? append&position=0 HTTP/1.1
Host: BucketName.oss.example.com
Cache-control: no-cache
Expires: Wed, 08 Jul 2015 16:57:01 GMT
Content-Encoding: utf-8
Content-Disposition: attachment;filename=oss_download.jpg
Date: Wed, 08 Jul 2015 06:57:01 GMT
Content-Type: image/jpg
Content-Length: 1717
Authorization: OSS q***:k***=
[1717 bytes of object data]
```

Sample responses

```
HTTP/1.1 200 OK
Date: Wed, 08 Jul 2015 06:57:01 GMT
ETag: "0***0"
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
x-oss-hash-crc64ecma: 14741617095266562575
x-oss-next-append-position: 1717
x-oss-request-id: 5***1
```

6.1.1.6.5. DeleteObject

You can call this operation to delete an object.

Usage notes

When you call the DeleteObject operation, take note of the following items:

- You must have write permissions on the object that you want to delete.
- HTTP status code 204 is returned when the DeleteObject operation succeeds, regardless of whether the object exists.
- If the object you want to delete is a symbolic link, the DeleteObject operation deletes only the symbolic link but not the content that the link points to.

Request structure

```
DELETE /ObjectName HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

The request headers involved in the DeleteObject operation contain only common request headers. For more information, see Common request headers.

Response headers

The response headers involved in the DeleteObject operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE /copy_oss.jpg HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 07:45:28 GMT
Authorization: OSS q***:z***=
```

Sample responses

```
HTTP/1.1 204 NoContent
x-oss-request-id: 5***1
Date: Fri, 24 Feb 2012 07:45:28 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.6.6. DeleteMultipleObjects

You can call this operation to delete multiple objects in the same bucket by using one HTTP request.

A maximum of 1,000 objects can be deleted when you call the DeleteMultipleObjects operation. This operation supports the following return modes:

- Verbose mode: The message body returned by OSS contains the result of each deleted object.
- Quiet mode: The message body returned by OSS contains only the results for objects that fail to be deleted. If all objects are deleted, no message body is returned.

Detail analysis

- You must specify Content-Length and Content-MD5 for the DeleteMultipleObjects request. OSS verifies that the received message body is correct based on the two header values before the delete operation is performed.
- The Content-MD5 value of the message content (excluding headers) is obtained by calculating the 128-bit hash value and then encoding the value in Base64 based on RFC 1864.
- If DeleteMultipleObjects is used to delete an object that does not exist, the operation is considered

to be successful.

- The message body for DeleteMultipleObjects can be up to 2 MB. If the size of the message body exceeds 2 MB, OSS returns the MalformedXML error code.
- A maximum of 1,000 objects can be deleted when you call the DeleteMultipleObjects operation. If more than 1,000 objects are requested, OSS returns the MalformedXML error code.
- If the Content-MD5 request header is specified, OSS calculates the MD5 hash of the received content and compares the calculated MD5 hash with the Content-MD5 header value in the request. If the two MD5 hashes are different, OSS returns InvalidDigest.

Request structure

```
POST /? delete HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Content-Length: ContentLength
Content-MD5: MD5Value
Authorization: SignatureValue
<? xml version="1.0" encoding="UTF-8"? >
<Delete>
  <Quiet>true</Quiet>
  <Object>
    <Key>key</Key>
  </Object>
...
</Delete>
```

Request headers

When you call the DeleteMultipleObjects operation, you can use the encoding-type parameter to encode the object names in the response.

Header	Type	Required	Example	Description
Encoding-type	String	No	url	The Key parameter is UTF-8 encoded. If the Key parameter includes control characters that are not supported by the XML 1.0 standard, you can specify this header to encode the Key parameter value in the response. Valid values: *url*
Content-Length	String	Yes	151	The length of the HTTP message body. OSS verifies the received message body based on this header, and deletes the object only when the length of the message body is the same as this header.

Header	Type	Required	Example	Description
Content-MD5	String	Yes	lVaXz0QX0UTCXraY9Z61mQ==	The Content-MD5 header value is a string calculated by using the MD5 algorithm. This header is used to check whether the content of the received message is same as that of the sent message. After the Content-MD5 request header is uploaded, OSS calculates the MD5 hash of the received object and checks whether the calculated MD5 hash is the same as the MD5 hash provided in the request. **Note** To obtain the value of the Content-MD5 header, encrypt the message body of the DeleteMultipleObjects request by using the MD5 algorithm to obtain a 128-bit byte array, and then encode the byte array in Base64.

Request elements

Element	Type	Required	Example	Description
Delete	Container	Yes	N/A	The container that stores the DeleteMultipleObjects request.
Object	Container	Yes	N/A	The container that stores the information about the object.
Key	String	Yes	test.jpg	The name of the object to be deleted.
Quiet	Boolean	Yes	true	Enables the Quiet response mode. DeleteMultipleObjects provides the following two response modes: • Quiet: The message body of the response returned by OSS includes only objects that fail to be deleted. If all objects are deleted, the response does not include a message body. • Verbose: The message body of the response returned by OSS includes the results of all deleted objects. By default, this mode is used. Valid values: *true* (enables the Quiet mode) and *false* (enables the Verbose mode) Default value: *false*

Response headers

Response headers involved in the DeleteMultipleObjects operation contain only common response headers. For more information, see Common response headers.

Examples

Sample Request 1

```
POST /? delete HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 29 Feb 2012 12:26:16 GMT
Content-Length:151
Content-MD5: o***==
Authorization: OSS q***:+z***=
<? xml version="1.0" encoding="UTF-8"? >
<Delete>
  <Quiet>false</Quiet>
  <Object>
    <Key>multipart.data</Key>
  </Object>
  <Object>
    <Key>test.jpg</Key>
  </Object>
  <Object>
    <Key>demo.jpg</Key>
  </Object>
</Delete>
```

Sample response

```
HTTP/1.1 200 OK
x-oss-request-id: 7***7
Date: Wed, 29 Feb 2012 12:26:16 GMT
Content-Length: 244
Content-Type: application/xml
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<DeleteResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Deleted>
       <Key>multipart.data</Key>
    </Deleted>
    <Deleted>
       <Key>test.jpg</Key>
    </Deleted>
    <Deleted>
       <Key>demo.jpg</Key>
    </Deleted>
</DeleteResult>
```

Sample Request 2

```
POST /? delete HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 29 Feb 2012 12:33:45 GMT
Content-Length:151
Content-MD5: o***A==
Authorization: OSS q***c:W***=
<? xml version="1.0" encoding="UTF-8"? >
<Delete>
  <Quiet>true</Quiet>
  <Object>
    <Key>multipart.data</Key>
  </Object>
  <Object>
    <Key>test.jpg</Key>
  </Object>
  <Object>
    <Key>demo.jpg</Key>
  </Object>
</Delete>
```

Sample response

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
Date: Wed, 29 Feb 2012 12:33:45 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.6.7. HeadObject

You can call this operation to return only the metadata of a specified object without returning the object content.

Detail analysis

- After the HeadObject request is sent, no message body is returned even if the system returns the 200 OK message or an error message.
- If you specify user metadata prefixed with x-oss-meta- when you send a PutObject request, such as x-oss-meta-location, the user metadata is returned.
- If the object does not exist, the system returns 404 Not Found.
- If server-side encryption is configured for the object, OSS returns the x-oss-server-side-encryption header in the response. The value of the x-oss-server-side-encryption header indicates the server-side encryption algorithm of the object.

Request structure

```
HEAD /ObjectName HTTP/1.1
Host: BucketName/regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Header	Type	Required	Example	Description
If-Modified-Since	String	No	Fri, 24 Feb 2012 07:32:52 GMT	The information return condition. If the specified time is earlier than the last modified time of the object, OSS returns the metadata of the object and 200 OK. If the specified time is equal to or later than the last modified time of the object, OSS returns 304 Not Modified. Default value: null
If-Unmodified-Since	String	No	Fri, 24 Feb 2012 07:32:52 GMT	The information return condition. If the specified time is equal to or later than the last modified time of the object, OSS returns the metadata of the object and 200 OK. If the specified time is earlier than the last modified time of the object, OSS returns 412 Precondition Failed. Default value: null
If-Match	String	No	215697CF4417D144C25EB698F5******	The information return condition. If the input ETag value matches the ETag value of the object, OSS returns the metadata of the object and 200 OK. If the input ETag value does not match the ETag value of the object, OSS returns 412 Precondition Failed. Default value: null
If-None-Match	String	No	215697CF4417D144C25EB698F5******	The information return condition. If the input ETag value does not match the ETag value of the object, OSS returns the metadata of the object and 200 OK. If the input ETag value matches the ETag value of the object, OSS returns 304 Not Modified. Default value: null

Response headers

If the requested object is a symbolic link, the following headers are included in the response:

- The Content-Length, ETag, and Content-Md5 header are the metadata of the object to which the symbolic link points.
- The Last-Modified header is the later one of the last modified time of the symbolic link and the object to which the symbolic link points.
- Other response headers are the metadata of the symbolic link.

Header	Type	Example	Description
x-oss-meta-*	String	x-oss-meta-test	The user metadata prefixed with x-oss-meta-. If you specify headers prefixed with x-oss-meta- in the PutObject request, the user metadata of the object is included in the response.
Custom headers that are not prefixed with x-oss-meta-	String	x-oss-persistent-headers	If you specify headers that are not prefixed with x-oss-meta- in the PutObject request to configure the user metadata of the object, the headers are included in the response. Example: x-oss-persistent-headers: *key1:base64_encode(value1),key2:base64_encode(value2)...* ..
x-oss-server-side-encryption	String	KMS	This header is included in the response if the object is encrypted by using the server-side encryption algorithm based on entropy encoding. The value of this header is the algorithm used to encrypt the object at the server side.
x-oss-server-side-encryption-key-id	String	3dea0cae-5fd6-4bf8-8574-87c557******	This header is included in the response if the object is encrypted by using KMS at the server side. The value of this header is the CMK ID used to encrypt the object.
x-oss-object-type	String	Normal	The type of the object. Valid values: • Normal: The object is uploaded by using PutObject. • Appendable: The object is uploaded by using AppendObject. • Multipart: The object is uploaded by using MultipartUpload.
x-oss-next-append-position	String	100	The position for the next append operation. This header is included in the response only when the type of the object is Appendable.
x-oss-hash-crc64ecma	String	15429415218160274758	The 64-bit CRC value of the object. This value is calculated based on the ECMA-182 standard. If an object is created before OSS supports CRC-64, this header may not be included in the response when you call HeadObject to query the metadata of the object.
Content-Md5	String	IVaXz0QX0UTCXraY9Z61mQ==	• This header is included in the response only when the object type is Normal. The value of this header is calculated based on the following process:1. Calculate the MD5 hash of the message content except for the headers based on RFC 1864 to obtain a 128-bit digit.2. Encode the digit by using Base64. • This header is not included in the response if the object type is Multipart or Appendable.

Header	Type	Example	Description
Last-Modified	String	Fri, 24 Feb 2012 06:07:48 GMT	The last time when the object is modified. The time is in GMT specified in HTTP/1.1.

Examples

Sample requests

```
HEAD /oss.jpg HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 07:32:52 GMT
Authorization: OSS q***:J***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
x-oss-object-type: Normal
Date: Fri, 24 Feb 2012 07:32:52 GMT
Last-Modified: Fri, 24 Feb 2012 06:07:48 GMT
ETag: "f***8"
Content-Length: 344606
Content-Type: image/jpg
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.6.8. GetObjectMeta

You can call this operation to query the basic metadata of an object in a bucket. The basic metadata includes the ETag, Size (object size), and LastModified. The object content is not returned.

Usage notes

- After the GetObjectMeta request is sent, no message body is contained in the response.
- You must include the Object meta parameter in the request when you call the GetObjectMeta operation. Otherwise, the request is used for GetObject.
- If the object does not exist, OSS returns 404 Not Found.
- GetObjectMeta is more lightweight than HeadObject. Only some basic metadata of an object in a bucket is returned for GetObjectMeta. The basic metadata includes the ETag, Size (object size), and LastModified. The value of the Content-Length response header indicates the object size.

Request structure

```
GET /ObjectName? objectMeta HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Request headers involved in the GetObjectMeta operation contain only common request headers. For more information, see Common request headers.

Response headers

Header	Type	Example	Description
Content-Length	String	344606	The size of the object.
ETag	String	215697CF4417D144C25EB698F59EB599	The ETag that is created to identify the content of the object when the object is created. If an object created by using a PutObject request, the ETag of the object is the MD5 hash of the object content. If an object is created by using other methods, the ETag value is the UUID of the object content. The ETag value of the object can be used to check whether the object content is modified. However, we recommend that you do not use the ETag of an object as the MD5 hash of the object to check data integrity. Default value: null
Last-Modified	String	Fri, 24 Feb 2012 06:07:48 GMT	The last time when the object is modified. The time is in GMT specified in HTTP/1.1.

Examples

Sample requests

```
GET /oss.jpg? objectMeta HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 29 Apr 2015 05:21:12 GMT
Authorization: OSS q***c:C***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
Date: Wed, 29 Apr 2015 05:21:12 GMT
ETag: "5***E"
Last-Modified: Fri, 24 Feb 2012 06:07:48 GMT
Content-Length: 344606
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.6.9. PutObjectACL

You can call this operation to modify the ACL of an object.

When you call PutObjectACL, you can set the x-oss-object-acl header in the PUT request to configure ACL for an object. Only bucket owners have permissions to configure object ACL. If the operation succeeds, 200 is returned. Otherwise, the corresponding error code and message are returned. The following object ACLs are available: private, public-read, public-read-write, and default.

Usage notes

- You can call PutObjectACL to configure ACL for an object. In addition, when you write an object, you can also include the x-oss-object-acl header in the request to configure ACL for the object. For example, you can include the x-oss-object-acl header in the request to configure the ACL for an object when you call PutObject.
- The object ACL takes precedence over its bucket ACL. For example, the bucket ACL is private, but the object ACL is public read/write. When the object is accessed, the object ACL takes precedence over the bucket ACL. If an object has no ACL configured, its bucket ACL applies.

Request structure

```
PUT /ObjectName? acl HTTP/1.1
x-oss-object-acl: Permission
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Header	Type	Required	Example	Description
x-oss-object-acl	String	Yes	private	The ACL of the object when the object was created. Valid values: • private: Only the owner or authorized users of the bucket can read and write the object. • public-read: Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. • public-read-write: All users, including anonymous users, can read and write the object. • default: The ACL of an object is the same as that of the bucket in which the object is stored.

For more information about the other common request headers involved in the PutObjectACL operation, see Common request headers.

Response headers

The response headers involved in the PutObjectACL operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT /test-object? acl HTTP/1.1
x-oss-object-acl: public-read
Host: ***.regionid.example.com
Date: Wed, 29 Apr 2015 05:21:12 GMT
Authorization: OSS q***c:K***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
Date: Wed, 29 Apr 2015 05:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.6.10. GetObjectACL

You can call this operation to query the ACL of an object.

Request structure

```
GET /ObjectName? acl HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

The request headers involved in the GetObjectACL operation contain only common request headers. For more information, see Common request headers.

Response elements

Element	Type	Example	Description
AccessControlList	Container	N/A	The container that contains the ACL information.
AccessControlPolicy	Container	N/A	The container used to store results of the GetObjectACL request.
DisplayName	String	1746495857******	The name of the bucket owner, which is the same as the user ID.

Element	Type	Example	Description
Grant	Enumerated string	private	The ACL of the object. Valid values: private, public-read, and public-read-write
ID	String	1746495857******	The user ID of the bucket owner.
Owner	Container	N/A	The container that stores the information about the bucket owner.

Examples

Sample requests

```
GET /test-object? acl HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 29 Apr 2015 05:21:12 GMT
Authorization: OSS q***c:C***=
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***1
Date: Wed, 29 Apr 2015 05:21:12 GMT
Content-Length: 253
Content-Type: application/xml
Connection: keep-alive
Server: AliyunOSS
<? xml version="1.0" ? >
<AccessControlPolicy>
    <Owner>
        <ID>0***2</ID>
        <DisplayName>0***2</DisplayName>
    </Owner>
    <AccessControlList>
        <Grant>public-read </Grant>
    </AccessControlList>
</AccessControlPolicy>
```

6.1.1.6.11. PostObject

You can call this operation to upload an object to a specific bucket by using HTML forms.

Usage notes

When you call the PostObject operation, take note of the following items:

- To perform the PostObject operation on a bucket, you must have write permissions on the bucket. If the ACL of the bucket is public read/write, you do not need to upload the signature information. If

the ACL of the bucket is not public read/write, signature verification is required for this operation.

- Unlike PutObject, PostObject uses an AccessKey secret to calculate the signature for a policy. The calculated signature string is used as the value of the Signature form field. OSS checks this value to verify the validity of the signature.
- The URL of the submitted form can be the domain name of the bucket. You do not need to specify the object in the URL. In other words, the request line is in the format of `POST / HTTP/1.1` instead of `POST /ObjectName HTTP/1.1`.
- OSS does not check the signature included in headers or URLs in PostObject requests.

Request structure

```
POST / HTTP/1.1
Host: BucketName.regionid.example.com
User-Agent: browser_data
Content-Length: ContentLength
Content-Type: multipart/form-data; boundary=9431149156168
--9431149156168
Content-Disposition: form-data; name="key"
key
--9431149156168
Content-Disposition: form-data; name="success_action_redirect"
success_redirect
--9431149156168
Content-Disposition: form-data; name="Content-Disposition"
attachment;filename=oss_download.jpg
--9431149156168
Content-Disposition: form-data; name="x-oss-meta-uuid"
myuuid
--9431149156168
Content-Disposition: form-data; name="x-oss-meta-tag"
mytag
--9431149156168
Content-Disposition: form-data; name="OSSAccessKeyId"
access-key-id
--9431149156168
Content-Disposition: form-data; name="policy"
encoded_policy
--9431149156168
Content-Disposition: form-data; name="Signature"
signature
--9431149156168
Content-Disposition: form-data; name="file"; filename="MyFilename.jpg"
Content-Type: image/jpeg
file_content
--9431149156168
Content-Disposition: form-data; name="submit"
Upload to OSS
--9431149156168--
```

Request headers

> **Note** The message body of a PostObject request is encoded in the multipart/form-data format. In PostObject operations, parameters are passed as form fields in the request message body, whereas parameters are passed as HTTP request headers in PutObject operations.

Header	Type	Required	Example	Description
OSSAccessKeyId	String	Conditional	LTAI4Fw2NbDUCV8zYU******	The AccessKey ID of the bucket owner. Default value: null Constraint: This form field is required when the bucket ACL is not public read/write or when the policy or Signature form field is provided.
policy	String	Conditional	`{ "expiration": "2014-12-01T12:00:00.000Z", "conditions": [ {"bucket": "johnsmith" }, ["starts-with", "$key", "user/eric/"] ] }`	Specifies the validity of the form fields in the request. A request that does not contain the policy form field is considered to be an anonymous request, and can be used only to access buckets whose ACLs are public read/write. For more information about the policy example, see Post policy. Default value: null Constraint: This form field is required when the bucket ACL is not public read/write or when the OSSAccessKeyId or Signature form field is provided. **Note** The form and the policy form field must be encoded in UTF-8.
Signature	String	Conditional	None	Specifies the signature information that is calculated based on the AccessKey secret and the policy form field. OSS checks the signature information to verify the validity of the PostObject request. Default value: null Constraint: This form field is required when the bucket ACL is not public read/write or when the OSSAccessKeyId or policy form field is provided. **Note** Form fields are case-insensitive, but their values are case-sensitive.

Header	Type	Required	Example	Description
Cache-Control, Content-Type, Content-Disposition, Content-Encoding, and Expires	String	No	None	The HTTP request headers. For more information, see PutObject. Default value: null The form submitted by the PostObject operation must be encoded in the `multipart/form-data` format. For example, the Content-Type header must be in the `multipart/form-data;boundary=xxxxxx` format, where boundary is a boundary string.
x-oss-content-type	String	No	text/h323	You can add the x-oss-content-type header in the message body of a PostObject request to specify the Content-Type of the object to upload. The Content-Type value specified by the x-oss-content-type header has the highest priority. The content type of the object is determined by three headers in the following priority in descending order: x-oss-content-type > Content-Type in the form field > Content-Type. Default value: null
key	String	Yes	/user/a/objectName.txt	The name of the object to upload. If the object name includes a path such as a/b/c/b.jpg, OSS automatically creates corresponding folders. Default value: null
success_action_redirect	String	No	None	The URL to which the client is redirected after the object is uploaded. If this form field is not specified, the returned result is specified by success_action_status. If the upload fails, OSS returns an error code, and the client is not redirected to a URL. Default value: null

Header	Type	Required	Example	Description
success_action_status	String	No	200	The status code returned to the client when the success_action_redirect form field is not specified and the object is uploaded. Default value: 204 Valid values: 200, 201, and 204. • If the value of this form field is set to 200 or 204, OSS returns an empty file and the 200 or 204 status code. • If the value of this form field is set to 201, OSS returns an XML file and the 201 status code. • If the value of this form field is not specified or set to an invalid value, OSS returns an empty file and the 204 status code.
x-oss-meta-*	String	No	x-oss-meta-location	The metadata customized by the user. Default value: null If the request contains a form field prefixed with x-oss-meta-, the form field is considered to be the user metadata. Example: x-oss-meta-location. **Note** An object may have multiple similar parameters prefixed with x-oss-meta-, but the total size of the user metadata cannot exceed 8 KB.
x-oss-server-side-encryption	String	No	KMS	The server-side encryption algorithm that is used when OSS creates the object. Valid values: *AES256* and *KMS* If you specify this parameter, it is returned in the response header and the uploaded object is encrypted and stored. When you download the encrypted object, the x-oss-server-side-encryption field is included in the response header and the field value is set to the algorithm used to encrypt the object.

Header	Type	Required	Example	Description
x-oss-server-side-encryption-key-id	String	No	3dea0cae-5fd6-4bf8-8574-87c557******	The ID of the customer master key (CMK) hosted in KMS. This parameter is valid only when the value of x-oss-server-side-encryption is set to KMS.
x-oss-object-acl	String	No	private	The ACL of the object when the object is created. Valid values: *public-read*, *private*, and *public-read-write*
x-oss-security-token	String	No	None	The security token for temporary authorization. If an STS temporary security credential is used for this access, you must set this field to the SecurityToken value and set OSSAccessKeyId to the value of the paired temporary AccessKey ID. The method to calculate a signature based on a temporary AccessKey ID is the same as that based on a typical AccessKey ID. Default value: null
file	String	Yes	MyFilename.txt	The file or text content. Browsers automatically set the Content-Type header based on the file type and overwrite the user setting. Only one file can be uploaded to OSS at a time. Default value: null **Notice** This header must be the last field in the form.

Response headers

Header	Type	Example	Description
x-oss-server-side-encryption	String	KMS	If x-oss-server-side-encryption is specified in the request, the response contains this header to indicate the encryption algorithm used to encrypt the object at the server side.

Response elements

Element	Type	Example	Description
PostResponse	Container	N/A	The container that stores the result of the Post request.
Bucket	String	examplebucket	The bucket name.
ETag	String	E64478CDF7F0BFAF602F8D676D5B04E1	The entity tag (ETag) that is created when an object is generated. If an object is created by calling the PostObject operation, the ETag value is the object UUID, which can be used to check whether the object content is changed.
Location	String	https://examplebucket.endpoint/user/a/objectName.txt	The URL of the new object that is created.

Examples

Sample requests

```
POST / HTTP/1.1
Host: ***.regionid.example.com
Content-Length: 344606
Content-Type: multipart/form-data; boundary=9431149156168
--9431149156168
Content-Disposition: form-data; name="key"
/user/a/${filename}
--9431149156168
Content-Disposition: form-data; name="success_action_status"
200
--9431149156168
Content-Disposition: form-data; name="Content-Disposition"
content_disposition
--9431149156168
Content-Disposition: form-data; name="x-oss-meta-uuid"
uuid
--9431149156168
Content-Disposition: form-data; name="x-oss-meta-tag"
metadata
--9431149156168
Content-Disposition: form-data; name="OSSAccessKeyId"
44CF9590006BF252F707
--9431149156168
Content-Disposition: form-data; name="policy"
eyJleHBpcmF0aW9uIjoiMjAxMy0xMi0wMVQxMjowMDowMFoiLCJjb25kaXRpb25zIjpbWyJjb250ZW50LWxlbmd0aC1
yYW5nZSIsIDAsIDEwNDg1NzYwXSx7ImJ1Y2tldCI6ImFoYWhhIn0sIHsiQSI6ICJhIn0seyJrZXkiOiAiQUJDIn1dfQ
==
--9431149156168
Content-Disposition: form-data; name="Signature"
k***0+d***k=
--9431149156168
Content-Disposition: form-data; name="file"; filename="MyFilename.txt"
Content-Type: text/plain
abcdefg
--9431149156168
Content-Disposition: form-data; name="submit"
Upload to OSS
--9431149156168--
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 6***e
Date: Fri, 24 Feb 2014 06:03:28 GMT
ETag: 5***E
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

Post policy

The policy form field in a PostObject request is used to verify the validity of the request. The policy value is a JSON text encoded in UTF-8 and Base64. This value declares the conditions that a PostObject request must meet. The policy form field is optional for uploading objects to a bucket whose ACL is public read/write. However, to limit PostObject requests, we recommend that you use this field.

- Policy example

```
{ "expiration": "2014-12-01T12:00:00.000Z",
 "conditions": [
 {"bucket": "johnsmith" },
 ["starts-with", "$key", "user/eric/"]
 ]
}
```

In the PostObject request, the policy must contain the expiration and conditions attributes.

- Expiration

Expiration specifies the expiration time of the policy, which is expressed in ISO 8601 GMT. For example, "2014-12-01T12:00:00.000Z" indicates that the PostObject request must be sent before 12:00:00 on December 1, 2014.

- Conditions

Conditions is a list that specifies the valid values of form fields in the PostObject request. The value of a form field is extended after OSS checks the policy. Therefore, the valid value of the form field set in policy is equivalent to the value of the form field before extension. For example, if the key form field is set to user/user1/${filename} and the object name before the upload is a.txt, the key form field in policy of the PostObject request must be set to ["eq", "$key", "user/user1/\${filename}"] instead of ["eq", "$key","$key", "user/user1/a.txt"]. The following table lists the conditions supported by the policy.

Conditions

Condition	Description
content-length-range	The acceptable maximum and minimum sizes of the uploaded file. This condition supports the content-length-range match mode.
Cache-Control, Content-Type, Content-Disposition, Content-Encoding, Expires	HTTP request headers. This condition supports the exact match and starts-with match modes.
key	The name of the object after the upload. This condition supports the exact match and starts-with match modes.
success_action_redirect	The URL to which the client is redirected after the object is uploaded. This condition supports the exact match and starts-with match modes.
success_action_status	The status code returned after the object is uploaded if success_action_redirect is not specified. This condition supports the exact match and starts-with match modes.
x-oss-meta-*	The metadata customized by the user. This condition supports the exact match and starts-with match modes.

If the PostObject request contains other form fields, these extra form fields can be added to conditions of the policy. OSS does not check validity of the form fields that are not included in conditions.

- Condition match modes

Match mode	Description
Exact match	The value of a form field must be exactly the same as the value that is declared in conditions. For example, if the value of the key form field must be a, the condition can be {"key": "a"} or ["eq", "$key", "a"].
Starts With	The value of a form field must start with the specified value. For example, if the value of the key form field must start with /user/user1, the condition is ["starts-with", "$key", "/user/user1"].
Specified object size	The maximum and minimum sizes of the object that can be uploaded. For example, if the acceptable object size is 1 to 10 bytes, the condition is ["content-length-range", 1, 10].

- Escape characters

  In the policy of a PostObject request, a dollar sign ($) is used to indicate a variable. Therefore, to describe the dollar sign ($), you must use escape characters (\$). In addition, some characters in JSON are escaped. The following table describes escape characters for the JSON string of the policy in the PostObject request.

  Escape characters

Escape character	Description
\/	Slash
\	Backslash
\"	Double quotation marks
\$	Dollar sign
\b	Backspace
\f	Form feed
\n	Line feed
\r	Carriage return
\t	Horizontal tab
\uxxxx	Unicode character

Post Signature

For signature authentication, the HTML form must contain policy and Signature. policy specifies the values that are valid in the request. The procedure to calculate the Signature field value:

1. Create a UTF-8 encoded policy.
2. Encode the policy in Base64. The encoding result is the value of the policy form field, and this value is used as the string-to-sign.
3. Use the AccessKey secret to sign the string. The signing method is the same as the method to calculate the signature in the header, which replaces the string-to-sign with the policy form field value.

6.1.1.6.12. Callback

To enable OSS to return callback information of an object to an application server after the object is uploaded to OSS, you need only to include a callback parameter in the upload request that is sent to OSS. This topic describes how to implement upload callback in detail.

> **Note** Operations that support callbacks include PutObject, PostObject, and CompleteMultipartUpload.

Step 1: Create parameters

- Callback parameter

  A callback parameter is a Base64-encoded string (field) in the JSON format. To create a callback parameter, you must specify the URL (callbackUrl) of the server to which the callback information is sent and the content (callbackBody) of the callback information.

  The following table describes the JSON fields that are included in a callback parameter.

Field	Description	Required
callbackUrl	Field descriptions and usage notes: ○ After an object is uploaded, OSS sends a callback request by using the POST method to this URL. The body of the request is the content specified in callbackBody. In most cases, the URL returns an `HTTP/1.1 200 OK` response. The response body must be in the JSON format, and the Content-Length response header value is smaller than 3 MB. ○ You can configure up to five URLs that are separated with semicolons (;) for a request. OSS sends requests to each URL until the first success response is returned. ○ If no URLs are configured or the value of this field is null, OSS determines that the callback feature is not configured. ○ HTTPS-based URLs are supported. ○ To ensure that Chinese characters can be correctly processed, the callback URL must be encoded.	Yes

Field	Description	Required
callbackHost	Field descriptions and usage notes: ○ The value of the Host header in the callback request. This field is valid only when callbackUrl is specified. ○ If callbackHost is not specified, the host values are resolved from the URLs of the callbackUrl field and are specified as the value of callbackHost.	No
callbackBody	Field descriptions and usage notes: ○ The value of the callback request body. Example: key=$(key)&etag=$(etag)&my_var=$(x:my_var). ○ OSS system variables as well as custom variables and constants are supported. The following table lists supported system variables. Custom variables are passed in by using the callback-var parameter in the PutObject and CompleteMultipart operations and by using form fields in the PostObject operation.	Yes
callbackBodyType	Field descriptions and usage notes: ○ The Content-Type header in the callback request. Valid values: application/x-www-form-urlencoded and application/json. Default value: application/x-www-form-urlencoded. ○ If callbackBodyType is set to application/x-www-form-urlencoded, the variables in callbackBodyType are replaced with URL-encoded values. If callbackBodyType is set to application/json, the variables in callbackBodyType are replaced with JSON-formatted values.	No

Examples of the JSON fields:

```
{
"callbackUrl":"121.101.166.30/test.php",
"callbackHost":"oss-cn-hangzhou.aliyuncs.com",
"callbackBody":"{\"mimeType\":${mimeType},\"size\":${size}}",
"callbackBodyType":"application/json"
}
```

```
{
"callbackUrl":"121.43.113.8:23456/index.html",
"callbackBody":"bucket=${bucket}&object=${object}&etag=${etag}&size=${size}&mimeType=${mimeType}&imageInfo.height=${imageInfo.height}&imageInfo.width=${imageInfo.width}&imageInfo.format=${imageInfo.format}&my_var=${x:my_var}"
}
```

The following table lists the system parameters you can configure for callbackBody.

System parameter	Description
bucket	The name of the bucket.
object	The name of the object.
etag	The ETag field configured for the object and returned to the requester.
size	The size of the object to request, which is the total size of the entire object in CompleteMultipartUpload operations.
mimeType	The type of the resource. For example, the resource type of JPEG images is image/jpeg.
imageInfo.height	The height of the image.
imageInfo.width	The width of the image.
imageInfo.format	The format of the image. Examples: JPG and PNG.

> **Note** This parameter applies only to image objects. If the object is not an image, the values of imageInfo.height, imageInfo.width, and imageInfo.format are null.

- Create custom parameters by using callback-var

  You can configure custom parameters by using the callback-var parameter. Custom parameters are key-value pairs in map. You can add the required parameters to the map. When a POST callback request is initiated, OSS adds these custom parameters and the system parameters described in the preceding section to the body of the POST request. This method allows these parameters to be obtained by the requester.

  You can create a custom parameter the way you create a callback parameter, which must be passed in the JSON format. The JSON string is a map that consists of key-value pairs of all custom parameters.

  > **Note** The key of a custom parameter must start with x: and be lowercase letters. Otherwise, OSS returns an error.

  Assume that you must configure two custom parameters x:var1 and x:var2. The value of x:var1 is value1. The value of x:var2 is value2. Created JSON string:

```
{
"x:var1":"value1",
"x:var2":"value2"
}
```

Note If the input callback parameter or callback-var parameter is invalid, HTTP status code 400 and error code InvalidArgument are returned. This error occurs in the following scenarios:

- URLs and headers are passed in at the same time to the callback parameter (x-oss-callback) or the callback-var parameter (x-oss-callback-var) in PutObject and CompleteMultipartUpload operations.
- The size of the callback or callback-var parameter exceeds 5 KB. This does not occur in PostObject operations because the callback-var parameter is unavailable in PostObject operations.
- The callback or callback-var parameter is not Base64-encoded or is not in a valid JSON format after the callback or callback-var parameter is decoded.
- The callbackUrl field that is decoded from the callback parameter includes more than five URLs, or the port in the URL is invalid. Example:

```
{"callbackUrl":"10.101.166.30:test",
    "callbackBody":"test"}
```

- The callbackBody field that is decoded from the callback parameter is null.
- The value of the callbackBodyType field decoded from the callback parameter is not `application/x-www-form-urlencoded` or `application/json`.
- The variables in the callbackBody field decoded from the callback parameter are not in the format of ${var}.
- The variables in the callbackBody field decoded from the callback-var parameter are not in the expected JSON format of `{"x:var1":"value1","x:var2":"value2"...}`.

Step 2: Create a callback request

After you create the callback and callback-var parameters, you must add the parameters to the callback request that is sent to OSS.

You can use the following methods to add parameters:

- Add the parameters to a URL.
- Add the parameters to the header.
- Add the parameters to the form fields in the body of a POST request.

Note You can use only this method to specify callback parameters when you upload objects by using POST requests.

You can use only one of the preceding three methods. If you use more than one method, OSS returns the InvalidArgument error code.

To add the parameters to a request that is sent to OSS, you must use Base64 to encode the JSON string created in the preceding section, and then add the parameters:

- To add the parameters to a URL, add `callback=[CallBack]` or `callback-var=[CallBackVar]` to the request as a URL parameter. When the signature for the CanonicalizedResource field is calculated, callback or callback-var is used as a subresource.
- To add the parameters to the header, add `x-oss-callback=[CallBack]` or `x-oss-callback-var=[CallBackVar]` to the request as a header. When the signature for the CanonicalizedOSSHeaders

field is calculated, include x-oss-callback-var and x-oss-callback. Examples:

```
PUT /test.txt HTTP/1.1
Host: callback-test.oss-test.aliyun-inc.com
Accept-Encoding: identity
Content-Length: 5
x-oss-callback-var: eyJ4Om15X3ZhciI6ImZvci1jYWxsYmFjay10ZXN0In0=
User-Agent: aliyun-sdk-python/0.4.0 (Linux/2.6.32-220.23.2.ali1089.el5.x86_64/x86_64;2.5.
4)
x-oss-callback: eyJjYWxsYmFja1VybCI6IjEyMS40My4xMTMuODoyMzQ1Ni9pbmRleC5odG1sIiwgICJjYWxsY
mFja0JvZHkiOiJidWNrZXQ9JHtidWNrZXR9Jm9iamVjdD0ke29iamVjdH0mZXRhZz0ke2V0YWd9JnNpemU9JHtzaX
plfSZtaW1lVHlwZT0ke21pbWVUeXBlfSZpbWFnZUluZm8uaGVpZ2h0PSR7aW1hZ2VJbmZvLmhlaWdodH0maW1hZ2V
JbmZvLndpZHRoPSR7aW1hZ2VJbmZvLndpZHRofSZpbWFnZUluZm8uZm9ybWF0PSR7aW1hZ2VJbmZvLmZvcmlhdH0m
bXlfdmFyPSR7eDpteV92YXJ9In0=
Host: callback-test.oss-test.aliyun-inc.com
Expect: 100-Continue
Date: Mon, 14 Sep 2015 12:37:27 GMT
Content-Type: text/plain
Authorization: OSS mlepou3zr4u7b14:5a74vhd4UXpmyuudV14Kaen5****
Test
```

- Add the parameters to the form fields in the body of a POST request.
  - It is complex to add the callback parameter when the POST method is used to upload an object because the callback parameter must be added by using a separate form field. Example:

```
--9431149156168
Content-Disposition: form-data; name="callback"
eyJjYWxsYmFja1VybCI6IjEwLjEwMS4xNjYuMzA6ODA4My9jYWxsYmFjay5waHAiLCJjYWxsYmFja0hvc3QiOiI
xMC4xMDEuMTY2LjMwIiwiY2FsbGJhY2tCb2R5IjoiZmlsZW5hbWU9JChmaWxlbmFtZSkmdGFibGU9JHt4OnRhYm
xlfSIsImNhbGxiYWNrQm9keVR5cGUiOiJhcHBsaWNhdGlvbi94LXd3dy1mb3JtLXVybGVuY29kZWQifQ==
```

- Each custom parameter uses a separate form field. You cannot add the callback-var parameter to existing fields. Examples of JSON fields for customer parameters:

```
{
"x:var1":"value1",
"x:var2":"value2"
}
```

The form fields in the POST request:

```
--9431149156168
Content-Disposition: form-data; name="callback"
eyJjYWxsYmFja1VybCI6IjEwLjEwMS4xNjYuMzA6ODA4My9jYWxsYmFjay5waHAiLCJjYWxsYmFja0hvc3QiOiI
xMC4xMDEuMTY2LjMwIiwiY2FsbGJhY2tCb2R5IjoiZmlsZW5hbWU9JChmaWxlbmFtZSkmdGFibGU9JHt4OnRhYm
xlfSIsImNhbGxiYWNrQm9keVR5cGUiOiJhcHBsaWNhdGlvbi94LXd3dy1mb3JtLXVybGVuY29kZWQifQ==
--9431149156168
Content-Disposition: form-data; name="x:var1"
value1
--9431149156168
Content-Disposition: form-data; name="x:var2"
value2
```

You can also add callback conditions to the policy (if callback parameters are not added, upload verification is not performed on the policy). Example:

```
{ "expiration": "2014-12-01T12:00:00.000Z",
  "conditions": [
    {"bucket": "johnsmith" },
    {"callback": "eyJjYWxsYmFja1VybCI6IjEwLjEwMS4xNjYuMzA6ODA4My9jYWxsYmFjay5waHAiLCJjY
WxsYmFja0hvc3QiOiIxMC4xMDEuMTY2LjMwIiwiY2FsbGJhY2tCb2R5IjoiZmlsZW5hbWU9JChmaWxlbmFtZSki
LCJjYWxsYmFja0JvZHlUeXBlIjoiYXBwbGljYXRpb24veC13d3ctZm9ybS11cmxlbmNvZGVkIn0="},
    ["starts-with", "$key", "user/eric/"],
  ]
}
```

Step 3: Initiate a callback request

If an object is uploaded, OSS sends the content specified by the callback and callback-var parameters in the request to the application server by using the POST method. Example:

```
POST /index.html HTTP/1.0
Host: 121.43.113.8
Connection: close
Content-Length: 181
Content-Type: application/x-www-form-urlencoded
User-Agent: http-client/0.0.1
bucket=callback-test&object=test.txt&etag=D8E8FCA2DC0F896FD7CB4CB0031BA249&size=5&mimeType=
text%2Fplain&imageInfo.height=&imageInfo.width=&imageInfo.format=&x:var1=for-callback-test
```

Step 4: (Optional) Sign the callback request

If the callback parameter is configured in the request, OSS uses POST to send a callback request to the application server based on the specified callback URL. To verify whether the callback request received by the application server is initiated by OSS, you can sign the callback request.

- Generate a signature

  A callback request is signed by OSS by using the RSA asymmetric algorithm.

  To generate a signature, encrypt the callback string by using a private key. Example:

  ```
  authorization = base64_encode(rsa_sign(private_key, url_decode(path) + query_string + '\n
  ' + body, md5))
  ```

  > **Note** In the preceding code, private_key is a private key known only by OSS, path is the resource path included in the callback request, query_string is the query string, and body is the message body specified in the callback request.

  A callback request is signed in the following steps:

  i. Obtain the callback string to sign, which consists of the resource path that is obtained by decoding the URL, the original query string, a carriage return, and the callback message body.

  ii. Sign the callback string by using the RSA encryption algorithm. Use the private key to encrypt the signature string. The hash function used for the signature is MD5.

  iii. Use Base64 to encode the signed result to obtain the final signature and add the signature to the Authorization header in the callback request.

  Examples:

  ```
  POST /index.php? id=1&index=2 HTTP/1.0
  Host: 121.43.113.8
  Connection: close
  Content-Length: 18
  authorization: kKQeGTRccDKyHB3H9vF+xYMSrmhMZjzzl2/kdD1ktNVgbWEfYTQG0G2SU/RaHBovRCE8OkQDjC
  3uG33esH2t****
  Content-Type: application/x-www-form-urlencoded
  User-Agent: http-client/0.0.1
  x-oss-pub-key-url: aHR0cDovL2dvc3NwdWJsaWMuYWxpY2RuLmNvbS9jYWxsYmFja19wdWJfa2V5X3YxLnBlbQ
  ==
  bucket=yonghu-test
  ```

  In the preceding code, path is set to `/index.php`, and query_string is set to `? id=1&index=2`, and the body is set to `bucket=yonghu-test`. The final signature is `kKQeGTRccDKyHB3H9vF+xYMSrmhMZjzzl2/kdD1ktNVgbWEfYTQG0G2SU/RaHBovRCE8OkQDjC3uG33esH2txA==`.

- Verify the signature

  Signature verification is an inverse process of signing a request. The signature is verified by the application server. Process:

  ```
  Result = rsa_verify(public_key, md5(url_decode(path) + query_string + '\n' + body), base6
  4_decode(authorization))
  ```

  The fields in the preceding code and the fields that are used to sign the request have the same meanings. public_key specifies the public key and authorization specifies the signature in the callback request header. Process of verifying the signature:

  i. The x-oss-pub-key-url header in the callback request stores the Base64-encoded URL of the public key. Therefore, you must decode the Base64-encoded URL to obtain the public key.

```
public_key = urlopen(base64_decode(x-oss-pub-key-url header value))
```

> **Note** To ensure that the public key is issued by OSS, you must verify whether the value of the `x-oss-pub-key-url` header starts with `http://gosspublic.alicdn.com/` or `https://gosspublic.alicdn.com/`.

ii. Obtain the signature decoded in Base64.

```
signature = base64_decode(authorization header value)
```

iii. Obtain the string to sign the way described in the process of signing the callback request.

```
sign_str = url_decode(path) + query_string + '\n' + body
```

iv. Verify the signature.

```
result = rsa_verify(public_key, md5(sign_str), signature)
```

Complete process of verifying the signature:

i. Obtain the URL of the public key by decoding `aHR0cDovL2dvc3NwdWJsaWMuYWxpY2RuLmNvbS9jYWxsYmFja19wdWJfa2V5X3YxLnBlbQ==` in Base64. The decoded URL is `http://gosspublic.alicdn.com/callback_pub_key_v1.pem`.

ii. Decode `kKQeGTRccDKyHB3H9vF+xYMSrmhMZjzzl2/kdD1ktNVgbWEfYTQG0G2SU/RaHBovRCE8OkQDjC3uG33esH2txA==` in Base64. The decoded result cannot be displayed because it is a nonprintable string.

iii. Obtain the string to sign, which is url_decode("index.php") + "? id=1&index=2" + "\n" + "bucket=yonghu-test", and perform MD5 verification on the string.

iv. Verify the signature.

- Example for an application server to verify a signature:

  The following Python code provides an example of how an application server verifies a signature. Before you run the code, the M2Crypto library must be installed.

```
import httplib
import base64
import md5
import urllib2
from BaseHTTPServer import BaseHTTPRequestHandler, HTTPServer
from M2Crypto import RSA
from M2Crypto import BIO
def get_local_ip():
    try:
        csock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
        csock.connect(('8.8.8.8', 80))
        (addr, port) = csock.getsockname()
        csock.close()
        return addr
    except socket.error:
        return ""
class MyHTTPRequestHandler(BaseHTTPRequestHandler):
    '''
    def log_message(self, format, *args):
```

```
    def log_message(self, format, *args):
        return
    '''
    def do_POST(self):
        #get public key
        pub_key_url = ''
        try:
            pub_key_url_base64 = self.headers['x-oss-pub-key-url']
            pub_key_url = pub_key_url_base64.decode('base64')
            if not pub_key_url.startswith("http://gosspublic.alicdn.com/") and not pub_ke
y_url.startswith("https://gosspublic.alicdn.com/"):
                self.send_response(400)
                self.end_headers()
                return
            url_reader = urllib2.urlopen(pub_key_url)
            #you can cache it
            pub_key = url_reader.read()
        except:
            print 'pub_key_url : ' + pub_key_url
            print 'Get pub key failed!'
            self.send_response(400)
            self.end_headers()
            return
        #get authorization
        authorization_base64 = self.headers['authorization']
        authorization = authorization_base64.decode('base64')
        #get callback body
        content_length = self.headers['content-length']
        callback_body = self.rfile.read(int(content_length))
        #compose authorization string
        auth_str = ''
        pos = self.path.find('?')
        if -1 == pos:
            auth_str = urllib2.unquote(self.path) + '\n' + callback_body
        else:
            auth_str = urllib2.unquote(self.path[0:pos]) + self.path[pos:] + '\n' + callb
ack_body
        print auth_str
        #verify authorization
        auth_md5 = md5.new(auth_str).digest()
        bio = BIO.MemoryBuffer(pub_key)
        rsa_pub = RSA.load_pub_key_bio(bio)
        try:
            result = rsa_pub.verify(auth_md5, authorization, 'md5')
        except:
            result = False
        if not result:
            print 'Authorization verify failed!'
            print 'Public key : %s' % (pub_key)
            print 'Auth string : %s' % (auth_str)
            self.send_response(400)
            self.end_headers()
            return
        #do something according to callback_body
        #response to OSS
```

```
        resp_body = '{"Status":"OK"}'
        self.send_response(200)
        self.send_header('Content-Type', 'application/json')
        self.send_header('Content-Length', str(len(resp_body)))
        self.end_headers()
        self.wfile.write(resp_body)
class MyHTTPServer(HTTPServer):
    def __init__(self, host, port):
        HTTPServer.__init__(self, (host, port), MyHTTPRequestHandler)
if '__main__' == __name__:
    server_ip = get_local_ip()
server_port = 23451
server = MyHTTPServer(server_ip, server_port)
server.serve_forever()
```

The code for the server in other programming languages:

Java:

- Download link: Java
- Running method: Decompress the package, and run `java -jar oss-callback-server-demo.jar 9000`. 9000 is the port number and can be customized.

PHP:

- Download link: PHP
- Running method: Deploy the code to an Apache environment because some headers in the PHP code depend on the environment. You can modify the example code based on the environment.

Python:

- Download link: Python
- Running method: Decompress the package, and run `python callback_app_server.py`. Before you run the code, RSA dependencies must be installed.

.NET:

- Download link: .NET
- Running method: Decompress the package, and follow `README.md`.

Go:

- Download link: Go
- Running method: Decompress the package, and follow `README.md`.

Ruby:

- Download link: Ruby
- Running method: Run the ruby aliyun_oss_callback_server.rb command.

Step 5: Return the callback result

The application server returns the response to OSS.

The response to the callback request:

```
HTTP/1.0 200 OK
Server: BaseHTTP/0.3 Python/2.7.6
Date: Mon, 14 Sep 2015 12:37:27 GMT
Content-Type: application/json
Content-Length: 9
{"a":"b"}
```

Note The response returned by the application server to OSS must contain the Content-Length header. The size of the response body cannot exceed 1 MB.

Step 6: Return the upload result

OSS returns the information that is returned by the application server to the user.

An example of the returned response:

```
HTTP/1.1 200 OK
Date: Mon, 14 Sep 2015 12:37:27 GMT
Content-Type: application/json
Content-Length: 9
Connection: keep-alive
ETag: "D8E8FCA2DC0F896FD7CB4CB0031BA249"
Server: AliyunOSS
x-oss-bucket-version: 1442231779
x-oss-request-id: 55F6BF87207FB30F2640C548
{"a":"b"}
```

Note

- The body of responses to some requests such as CompleteMultipartUpload contains content such as information in the XML format. If you use the upload callback feature, the original body content such as `{"a":"b"}` is overwritten. Exercise caution when you implement upload callback.
- If the upload callback fails, HTTP status code 203 and error code CallbackFailed are returned. This response indicates that the object is uploaded to OSS, but the callback fails. A callback failure only indicates that OSS does not receive the expected callback response. It does not indicate that the application server does not receive a callback request. For example, a callback failure occurs if the response returned by the application server is not in the JSON format.

6.1.1.7. Multipart upload-relevant operations

6.1.1.7.1. Overview

OSS provides multipart upload in addition to operations such as PutObject and PostObject.

Multipart upload can be used in the following scenarios but is not limited to:

- Resumable upload of the object is required.

- The size of the object you want to upload is larger than 5 GB.
- The OSS server is frequently disconnected due to poor network conditions.
- The size of the object you want to upload is unknown.

6.1.1.7.2. InitiateMultipartUpload

Before you use multipart upload to upload data, you must call the InitiateMultipartUpload operation to notify OSS to initiate a multipart upload task.

The OSS server returns a globally unique upload ID for the InitiateMultipartUpload operation. The upload ID uniquely identifies the multipart upload task. You can initiate operations such as stopping or querying the multipart upload task based on this upload ID.

Usage notes

- When you perform this operation to calculate the signature for authentication, you must add `?uploads` to CanonicalizedResource.
- If you set the x-oss-server-side-encryption header in the InitiateMultipartUpload request, the response contains this header. When each part is uploaded, the server encrypts and stores them. OSS server-side encryption supports the AES-256 and SM4 algorithms. If other algorithms are specified, OSS returns HTTP status code 400 and InvalidEncryptionAlgorithmError. When you upload each part, you do not need to add the x-oss-server-side-encryption request header. If this header is specified, OSS returns HTTP status code 400 and InvalidArgument.

Request structure

```
POST /ObjectName?uploads HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT date
Authorization: SignatureValue
```

Request parameters

The encoding-type parameter can be specified in the InitiateMultipartUpload request. OSS uses the specified encoding type to encode the object name in the response.

Parameter	Type	Required	Example	Description
encoding-type	String	No	url	The encoding type of the object names in the response. The object name can contain characters that are encoded in UTF-8. However, the XML 1.0 standard cannot be used to parse certain control characters such as characters with an ASCII value from 0 to 10. You can set the encoding-type parameter to encode the object names in the response. Set the value to url. Default value: null Valid value: url

Request headers

Header	Type	Required	Example	Description
Cache-Control	String	No	no-cache	The web page caching behavior that is specified when the object is downloaded. For more information, visit RFC 2616. Type: string. Default value: null
Content-Disposition	String	No	attachment; filename=oss_download.jpg	The presentational information of the object during the download. For more information, visit RFC 2616. Type: string. Default value: null
Content-Encoding	String	No	utf-8	The content encoding type of the object during the download. For more information, visit RFC 2616. Type: string. Default value: null
Expires	Integer	No	None	The expiration time in milliseconds. For more information, visit RFC 2616. Default value: null
x-oss-server-side-encryption	String	No	AES256	The encryption algorithm that OSS uses to encrypt each uploaded part of an object before storage. Valid values: AES256 and SM4

Response elements

Element	Type	Example	Description
Bucket	String	multipart_upload	The name of the bucket to which the object is uploaded by the multipart upload task.
InitiateMultipartUploadResult	Container	N/A	The container that is used to store the result of the InitiateMultipartUpload request.
Key	String	multipart.data	The name of the object that is uploaded by the multipart upload task.
UploadId	String	0***D	The unique ID of the multipart upload task.

Element	Type	Example	Description
EncodingType	String	url	The encoding type of the object name in the response. If the encoding-type parameter is specified in the request, the object name in the response is encoded.

Examples

Sample requests

```
POST /multipart.data? uploads HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 22 Feb 2012 08:32:21 GMT
Authorization: OSS q***4=
```

Sample responses

```
HTTP/1.1 200 OK
Content-Length: 230
Server: AliyunOSS
Connection: keep-alive
x-oss-request-id: 4***8
Date: Wed, 22 Feb 2012 08:32:21 GMT
Content-Type: application/xml
<? xml version="1.0" encoding="UTF-8"? >
<InitiateMultipartUploadResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Bucket>multipart_upload</Bucket>
    <Key>multipart.data</Key>
    <UploadId>0***D</UploadId>
</InitiateMultipartUploadResult>
```

6.1.1.7.3. UploadPart

After initializing a MultipartUpload task, you can call this operation to upload data in parts based on the specified object name and upload ID.

Usage notes

- Before you call UploadPart to upload parts, you must call InitiateMultipartUpload to obtain an upload ID issued by the OSS server.
- The part number ranges from 1 to 10000. If a part number is not within this range, OSS returns the InvalidArgument error code.
- In the multipart upload mode, the minimum size of each part except the last part is 100 KB. The UploadPart operation does not immediately verify the sizes of the uploaded parts because this operation cannot immediately determine which part is the last part. The size of the uploaded part is verified only when multipart upload is complete.
- OSS includes the MD5 hash for each part received by the server in the ETag header and returns the ETag header to the user.

- If the x-oss-server-side-encryption request header is specified when you call InitiateMultipartUpload, the uploaded parts are encoded. The x-oss-server-side-encryption header is included in the response to the UploadPart request, which indicates the server-side encryption method of the parts. For more information, see InitiateMultipartUpload.

Request structure

```
PUT /ObjectName? partNumber=PartNumber&uploadId=UploadId HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Content-Length: Size
Authorization: SignatureValue
```

Request headers

The request headers involved in the UploadPart operation contain only common request headers. For more information, see Common request headers.

Response headers

The response headers involved in the UploadPart operation contains only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT /multipart.data? partNumber=1&uploadId=0***6 HTTP/1.1
Host: ***.regionid.example.com
Content-Length:6291456
Date: Wed, 22 Feb 2012 08:32:21 GMT
Authorization: OSS q***I=
[6291456 bytes data]
```

Sample responses

```
HTTP/1.1 200 OK
Server: AliyunOSS
Connection: keep-alive
ETag: 7***9
x-oss-request-id: 3***a
Date: Wed, 22 Feb 2012 08:32:21 GMT
```

6.1.1.7.4. UploadPartCopy

You can call this operation to copy data from an existing object to upload a part.

Usage notes

To copy an object larger than 1 GB, use UploadPartCopy. For more information about how to upload an object smaller than 1 GB, see CopyObject.

When you call UploadPartCopy, take note of the following items:

- You cannot call AppendObject to copy data from append objects.
- When you call UploadPartCopy, the source and destination buckets must be located within the same region.
- Before you call UploadPart to upload a part, you must call InitiateMultipartUpload to obtain an upload ID issued by the OSS server.
- If the x-oss-server-side-encryption request header is specified when you call InitiateMultipartUpload, the uploaded part is encoded. The x-oss-server-side-encryption header is included in the response header of UploadPart, which indicates the server-side encryption method of the part.
- In multipart upload mode, each part except the last part must be larger than 100 KB in size. The size of each part is not verified when you call UploadPart because not all parts are uploaded and the system does not know which part is the last part. The size of each part is verified only when you call CompleteMultipartUpload.

Request structure

```
PUT /ObjectName? partNumber=PartNumber&uploadId=UploadId HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Content-Length: Size
Authorization: SignatureValue
x-oss-copy-source: /SourceBucketName/SourceObjectName
x-oss-copy-source-range:bytes=first-last
```

Request headers

The following table describes the x-oss-copy-source and x-oss-copy-source-range request headers except for common request headers in the UploadPartCopy request.

Header	Type	Required	Example	Description
x-oss-copy-source	String	Yes	oss-example/src-object	The source object address. You must have permissions to read the source object. Default value: null

Header	Type	Required	Example	Description
x-oss-copy-source-range	Integer	No	bytes=100-6291756	The range of bytes to copy data from the source object. For example, if you set bytes to 0 to 9, the system transfers byte 0 to byte 9, a total of 10 bytes. Default value: null • If the x-oss-copy-source-range request header is not specified, the entire source object is copied. • If the x-oss-copy-source-range request header is specified, the response contains the length of the entire object and the range of bytes to be copied for this operation. For example, Content-Range: bytes 0~9/44 indicates that the length of the entire object is 44 bytes. The range of bytes to be copied is byte 0 to byte 9. • If the specified range does not conform to the range conventions, OSS copies the entire object and does not include Content-Range in the response.

The following table describes request headers that are used for x-oss-copy-source to specify the source object.

Header	Type	Required	Example	Description
x-oss-copy-source-if-match	String	No	5B3C1A2E053D763E1B002CC607C5****	The copy operation condition. If the ETag value of the source object is the same as the ETag value provided by the user, OSS copies data. Otherwise, OSS returns 412 Precondition Failed. Type: string Default value: null
x-oss-copy-source-if-none-match	String	No	2019-04-09T07:01:56.000Z	The object copy condition. If the ETag value of the source object is different from the ETag value specified in the request, OSS copies the object. Otherwise, OSS returns 412 Precondition Failed. Type: string Default value: null

Header	Type	Required	Example	Description
x-oss-copy-source-if-unmodified-since	String	No	2019-04-09T07:01:56.000Z	The object copy condition. If the specified time is later than or equal to the actual modified time of the object, OSS transfers the object and returns 200 OK. Otherwise, OSS returns 412 Precondition Failed. Type: string Default value: null
x-oss-copy-source-if-modified-since	String	No	2019-04-09T07:01:56.000Z	The object copy condition. If the source object is modified after the time specified in the request, OSS copies the object. Otherwise, OSS returns 412 Precondition Failed. Type: string Default value: null

Response elements

Element	Type	Example	Description
CopyObjectResult	Container	N/A	The result of the CopyObject operation.
LastModified	String	2019-04-09T07:01:56.000Z	The time when the destination object was last modified.
ETag	String	5B3C1A2E053D763E1B002CC607C5****	The ETag value of the destination object.

Examples

Sample requests

```
PUT /multipart.data? partNumber=1&uploadId=0***6 HTTP/1.1
Host: ***.regionid.example.com
Content-Length: 6291456
Date: Wed, 22 Feb 2012 08:32:21 GMT
Authorization: OSS q***I=
x-oss-copy-source: /oss-example/ src-object
x-oss-copy-source-range:bytes=100-6291756
```

Sample responses

```
HTTP/1.1 200 OK
Server: AliyunOSS
Connection: keep-alive
x-oss-request-id: 3***a
Date: Thu, 17 Jul 2014 06:27:54 GMT'
<? xml version="1.0" encoding="UTF-8"? >
<CopyPartResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
 <LastModified>2014-07-17T06:27:54.000Z</LastModified>
 <ETag>"5***E"</ETag>
</CopyPartResult>
```

6.1.1.7.5. CompleteMultipartUpload

You can call this operation to complete multipart upload of an object after all parts are uploaded.

Usage notes

When you call the CompleteMultipartUpload operation, you must provide a complete list of all valid parts, which includes the part number and ETag of each part. After OSS receives the list of parts, OSS verifies the validity of each part one by one. After all these parts are validated, OSS combines these parts into a complete object.

- Confirm the size of each part

  When you perform the CompleteMultipartUpload operation, OSS checks whether each part except the last part is larger than or equal to 100 KB in size and verifies the part number and ETag of each part that are provided in the part list. Therefore, when a part is uploaded, the client must record not only the part number of the part but also the ETag value of the part returned from the server.

- Handle requests

  It may take a while for OSS to process the CompleteMultipartUpload request. If the client is disconnected from OSS during this period, OSS continues to process the request.

- PartNumber

  OSS verifies the value of PartNumber when you call the CompleteMultipartUpload operation.

  The value of PartNumber ranges from 1 to 10000. The part numbers listed in the request do not have to be consecutive but must be sorted in ascending order. For example, if the part number of the first part is 1, the part number of the second part can be 5.

- UploadId

  An object can be uploaded by multiple upload tasks that have independent upload IDs. When one upload task is complete, the corresponding upload ID becomes invalid and the upload IDs of other upload tasks are not affected.

- x-oss-server-side-encryption request header

  If the x-oss-server-side-encryption header is specified in an InitiateMultipartUpload request, this header is returned in the response to the request. The value of the x-oss-server-side-encryption header in the response indicates the method used to encrypt the object on the OSS server.

Request structure

```
POST /ObjectName? uploadId=UploadId HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Content-Length: Size
Authorization: Signature
<CompleteMultipartUpload>
<Part>
<PartNumber>PartNumber</PartNumber>
<ETag>ETag</ETag>
</Part>
...
</CompleteMultipartUpload>
```

Request headers

Header	Type	Required	Description
x-oss-complete-all:yes	String	No	Specifies whether to list all parts uploaded by using the current upload ID. • If x-oss-complete-all:yes is specified in the request, OSS lists all parts that are uploaded by using the current upload ID, sorts the parts by their part numbers, and then performs the CompleteMultipartUpload operation. OSS cannot detect parts that are not uploaded or being uploaded in the CompleteMultipartUpload operation. Therefore, you must ensure that all parts are uploaded before you perform the CompleteMultipartUpload operation. • If x-oss-complete-all:yes is specified in the request, the request body cannot be specified. Otherwise, an error occurs. • The format of the response remains unchanged if x-oss-complete-all:yes is specified in the request.

For more information about other common request headers such as Host and Date, see Common request headers.

Request elements

Element	Type	Required	Example	Description
CompleteMultipartUpload	Container	Yes	N/A	The container that stores the content of the CompleteMultipartUpload request.
ETag	String	No	3***9	The ETag values that are returned by OSS after parts are uploaded.

Element	Type	Required	Example	Description
Part	Container	Yes	N/A	The container that stores the uploaded parts.
PartNumber	Integer	Yes	1	The number of parts.

Response elements

Element	Type	Example	Description
Bucket	String	oss-example	The name of the bucket.
CompleteMultipartUploadResult	Container	N/A	The container that stores the response to the CompleteMultipartUpload request.
ETag	String	B***D-3	The UUID of the object content. The ETag is created to identify the content of an object when the object is created by using the CompleteMultipartUpload request. The ETag value of an object can be used to check whether the object content is changed.
Location	String	http://oss-example.endpoint/multipart.data	The URL of the new object that is created.
Key	String	multipart.data	The name of the created object.
EncodingType	String	utf-8	The encoding type of the object name in the response. If the encoding-type parameter is specified in the request, the object name in the response is encoded.

Examples

Sample requests

```
POST /multipart.data? uploadId=0***4  HTTP/1.1
Host: ***.regionid.example.com
Content-Length: 1056
Date: Fri, 24 Feb 2012 10:19:18 GMT
Authorization: OSS q***0=
<CompleteMultipartUpload>
    <Part>
        <PartNumber>1</PartNumber>
        <ETag>"3***9"</ETag>
    </Part>
    <Part>
        <PartNumber>5</PartNumber>
        <ETag>"8***A"</ETag>
    </Part>
    <Part>
        <PartNumber>8</PartNumber>
        <ETag>"8***2"</ETag>
    </Part>
</CompleteMultipartUpload>
```

Sample responses

```
HTTP/1.1 200 OK
Server: AliyunOSS
Content-Length: 329
Content-Type: Application/xml
Connection: keep-alive
x-oss-request-id: 5***e
Date: Fri, 24 Feb 2012 10:19:18 GMT
<? xml version="1.0" encoding="UTF-8"? >
<CompleteMultipartUploadResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Location>http://oss-example.endpoint /multipart.data</Location>
    <Bucket>oss-example</Bucket>
    <Key>multipart.data</Key>
    <ETag>B***D-3</ETag>
</CompleteMultipartUploadResult>
```

6.1.1.7.6. AbortMultipartUpload

You can call this operation to cancel a multipart upload task based on the specified upload ID.

Usage notes

When you call AbortMultipartUpload, take note of the following items:

- You must provide the upload ID of the multipart upload task that you want to cancel.
- When you cancel a multipart upload task, parts that are being uploaded cannot be deleted.
- After a multipart upload task is canceled, the upload ID of the task cannot be used to perform any operations and the parts uploaded by the task are deleted.
- We recommend that you complete or cancel multipart upload tasks that are not complete in a timely

manner because parts generated by these tasks consume storage space and incur storage fees.

Request structure

```
DELETE /ObjectName? uploadId=UploadId HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: Signature
```

Request elements

Element	Type	Required	Example	Description
uploadId	String	Yes	F18A92392DFD4B3FA897C26782*****	The ID of the multipart upload task.

For more information about other common request headers such as Host and Date, see Common request headers.

Response headers

Response headers involved in the AbortMultipartUpload operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
Delete /multipart.data? &uploadId=0***E  HTTP/1.1
Host: ***.regionid.example.com
Date: Wed, 22 Feb 2012 08:32:21 GMT
Authorization: OSS q***I=
```

Sample responses

```
HTTP/1.1 204
Server: AliyunOSS
Connection: keep-alive
x-oss-request-id: 0***d
Date: Wed, 22 Feb 2012 08:32:21 GMT
```

6.1.1.7.7. ListMultipartUploads

You can call this operation to list all ongoing multipart upload tasks that have been initiated but not complete or canceled.

The list returned by OSS contains a maximum of 1,000 multipart upload tasks. To specify the number of tasks that are returned in the response from OSS, you can add the max-uploads parameter to the request. In the response returned by OSS, the IsTruncated element indicates whether the response contains all the ongoing multipart upload tasks.

Request structure

```
Get /? uploads HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: Signature
```

Request parameters

Parameter	Type	Required	Example	Description
delimiter	String	No	None	The delimiter used to group objects by name. If you specify the Delimiter parameter in the request, the response contains the CommonPrefixes element. Objects whose names contain the same string from the prefix to the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes.
max-uploads	String	No	1000	The maximum number of multipart upload tasks to return for one request. If this parameter is not specified, default value 1000 applies. The max-uploads value cannot exceed 1000. Type: string
key-marker	String	No	None	The name of the object after which the list begins. This parameter is used together with the upload-id-marker parameter. • If the upload-id-marker parameter is not set, OSS returns multipart upload tasks in which object names are listed after the key-marker value. Multipart upload tasks are listed in alphabetical order of their object names. • If the upload-id-marker parameter is set, OSS returns the following tasks:Multipart upload tasks in which object names are listed after the key-marker value. Multipart upload tasks are listed in alphabetical order of their object names.Multipart upload tasks in which object names are the key-marker value but upload IDs are greater than the upload-id-marker value.

Parameter	Type	Required	Example	Description
prefix	String	No	None	The prefix that the returned object names must contain. Note that if you use a prefix to make a query, the returned object names still contain the prefix.
upload-id-marker	String	No	None	The upload ID of the multipart upload task after which the list begins. This parameter is used together with the key-marker parameter. • If the key-marker parameter is not set, OSS ignores the upload-id-marker parameter. • If the key-marker is set, the response includes the following tasks:Multipart upload tasks in which object names are listed after the key-marker value. Multipart upload tasks are listed in alphabetical order of their object names.Multipart upload tasks in which object names are equal to the key-marker parameter value but upload IDs are greater than the upload-id-marker parameter value.
encoding-type	String	No	utf-8	The encoding type of the object names in the response. Values of Delimiter, KeyMarker, Prefix, NextKeyMarker, and Key can be encoded in UTF-8. However, the XML 1.0 standard cannot be used to parse control characters such as characters with an ASCII value 0 to 10. You can set the encoding-type parameter to encode values of Delimiter, KeyMarker, Prefix, NextKeyMarker, and Key in the response. Default value: null

Response elements

Element	Type	Example	Description
ListMultipartUploadsResult	Container	N/A	The container that stores the response of the ListMultipartUpload request.
Bucket	String	oss-example	The name of the bucket.

Element	Type	Example	Description
EncodingType	String	UTF-8	The encoding type of the object name in the response. If encoding-type is specified in the request, values of those elements including Delimiter, KeyMarker, Prefix, NextKeyMarker, and Key are encoded in the returned result.
KeyMarker	String	5	The name of the object after which the list begins.
UploadIdMarker	String	None	The upload ID of the multipart upload task after which the list begins.
NextKeyMarker	String	oss.avi	The object name marker in the response for the next request to return the remaining results.
NextUploadMarker	String	0004B99B8E707874FC2D692FA5D77D3F	The NextUploadMarker value that is used for the UploadMarker value in a subsequent request when the response does not contain all required results.
MaxUploads	Integer	1000	The maximum number of upload tasks returned by OSS.
IsTruncated	Enumerated string	false	Indicates whether the multipart upload task list returned in this response is truncated. A value of true indicates that the response does not contain all required results. A value of false indicates that the response contains all required results. Valid values: false and true Default value: false
Upload	Container	N/A	The container that stores the information about multipart upload tasks.
Key	String	multipart.data	The object name in an initiated multipart upload task.
UploadId	String	0004B999EF518A1FE585B0C9360DC4C8	The ID of the multipart upload task.
Initiated	Release date	2012-02-23T04:18:23.000Z	The time when the multipart upload task was initiated.

Detail analysis

- The maximum value of the max-uploads parameter is 1000.
- The results returned by OSS are listed based on the alphabetical order of object names. If multipart upload tasks involve the same object, the results are listed in ascending order of time.
- You can use prefixes to group and manage objects in a bucket in the same way you manage a folder in a file system.

- ListMultipartUploads supports the following request parameters: prefix, marker, delimiter, upload-id-marker, and max-uploads. You can use one or more of the preceding parameters to configure rules to query multipart upload tasks so that results that meet conditions are returned.

Examples

Sample requests

```
Get /? uploads  HTTP/1.1
Host:***.regionid.example.com
Date: Thu, 23 Feb 2012 06:14:27 GMT
Authorization: OSS q***Y=
```

Sample responses

```
HTTP/1.1 200
Server: AliyunOSS
Connection: keep-alive
Content-length: 1839
Content-type: application/xml
x-oss-request-id: 5***a
Date: Thu, 23 Feb 2012 06:14:27 GMT
<? xml version="1.0" encoding="UTF-8"? >
<ListMultipartUploadsResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Bucket>oss-example</Bucket>
    <KeyMarker></KeyMarker>
    <UploadIdMarker></UploadIdMarker>
    <NextKeyMarker>oss.avi</NextKeyMarker>
    <NextUploadIdMarker>0***F</NextUploadIdMarker>
    <Delimiter></Delimiter>
    <Prefix></Prefix>
    <MaxUploads>1000</MaxUploads>
    <IsTruncated>false</IsTruncated>
    <Upload>
        <Key>multipart.data</Key>
        <UploadId>0***8</UploadId>
        <Initiated>2012-02-23T04:18:23.000Z</Initiated>
    </Upload>
    <Upload>
        <Key>multipart.data</Key>
        <UploadId>0***5</UploadId>
        <Initiated>2012-02-23T04:18:23.000Z</Initiated>
    </Upload>
    <Upload>
        <Key>oss.avi</Key>
        <UploadId>0***F</UploadId>
        <Initiated>2012-02-23T06:14:27.000Z</Initiated>
    </Upload>
</ListMultipartUploadsResult>
```

6.1.1.7.8. ListParts

You can call this operation to list all uploaded parts that are mapped to a specific upload ID.

Usage notes

- ListParts supports two request parameters: max-parts and part-number-marker.
- The maximum value of the max-parts parameter is 1000. The default value is 1000.
- The results returned by OSS are listed based on the ascending order of part numbers.
- Errors may occur during network transmission. We recommend that you do not use the results (part numbers and ETag values) of ListParts to generate the final part list of CompleteMultipart.

Request structure

```
Get  /ObjectName? uploadId=UploadId HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: Signature
```

Request parameters

Parameter	Type	Required	Example	Description
uploadId	String	No	0004B999EF5A239BB9138C6227D69F95	The ID of the multipart upload task. Default value: null
max-parts	Integer	No	1000	The maximum number of parts that can be returned by OSS. Type: integer Default value: 1000
part-number-marker	Integer	No	5	The number of the part after which the list begins. All parts whose part numbers are greater than this parameter value are listed. Type: integer Default value: null
encoding-type	String	No	url	The encoding type of the object name in the response. The object name can contain any characters that are encoded in UTF-8. However, the XML 1.0 standard cannot be used to parse control characters such as characters with an ASCII value from 0 to 10. You can set the encoding-type parameter to encode the object names in the response. Set the value to url.

Response elements

Element	Type	Example	Description
ListPartsResult	Container	N/A	The container that stores the response to the ListParts request.
Bucket	String	multipart_upload	The name of the bucket.
EncodingType	String	url	The encoding type of the object name in the response. If the encoding-type parameter is specified in the request, the object name in the response is encoded.
Key	String	multipart.data	The name of the object.
UploadId	String	0004B999EF5A239BB9138C6227D69F95	The ID of an upload task.
PartNumberMarker	Integer	5	The number of the part after which the list begins. All parts whose part numbers are greater than this parameter value are listed.
NextPartNumberMarker	Integer	5	The NextPartNumberMarker value that is used for the PartNumberMarker value in a subsequent request when the response does not contain all required results.
MaxParts	Integer	1000	The maximum number of parts in this response.
IsTruncated	Enumerated string	false	Indicates whether the part list returned in this response is truncated. A value of true indicates that the response does not contain all required results. A value of false indicates that the response contains all required results. Valid values: true and false
Part	Container	N/A	The container that stores part information.
PartNumber	Integer	1	The number that identifies a part.
LastModified	Release date	2012-02-23T07:01:34.000Z	The time when the part was uploaded.
ETag	String	3349DC700140D7F86A0784842780****	The ETag value of the content of the uploaded part. Type: Parent nodes: ListPartsResult and Part
Size	Integer	6291456	The size of the uploaded part.

Examples

Sample requests

```
Get  /multipart.data? uploadId=0***5  HTTP/1.1
Host: ***.regionid.example.com
Date: Thu, 23 Feb 2012 07:13:28 GMT
Authorization: OSS q***8=
```

Sample responses

```
HTTP/1.1 200
Server: AliyunOSS
Connection: keep-alive
Content-length: 1221
Content-type: application/xml
x-oss-request-id: 1***c
Date: Thu, 23 Feb 2012 07:13:28 GMT
<? xml version="1.0" encoding="UTF-8"? >
<ListPartsResult xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
    <Bucket>multipart_upload</Bucket>
    <Key>multipart.data</Key>
    <UploadId>0***5</UploadId>
    <NextPartNumberMarker>5</NextPartNumberMarker>
    <MaxParts>1000</MaxParts>
    <IsTruncated>false</IsTruncated>
    <Part>
        <PartNumber>1</PartNumber>
        <LastModified>2012-02-23T07:01:34.000Z</LastModified>
        <ETag>3***9</ETag>
        <Size>6291456</Size>
    </Part>
    <Part>
        <PartNumber>2</PartNumber>
        <LastModified>2012-02-23T07:01:12.000Z</LastModified>
        <ETag>3***9</ETag>
        <Size>6291456</Size>
    </Part>
    <Part>
        <PartNumber>5</PartNumber>
        <LastModified>2012-02-23T07:02:03.000Z</LastModified>
        <ETag>7***9</ETag>
        <Size>1024</Size>
    </Part>
</ListPartsResult>
```

6.1.1.8. CORS

6.1.1.8.1. Overview

Cross-origin resource sharing (CORS) allows web applications to access resources across origins. OSS allows you to use CORS to develop more flexible web applications. OSS provides CORS-related API operations for developers to control cross-origin access.

6.1.1.8.2. PutBucketcors

You can call this operation to configure a cross-origin resource sharing (CORS) rule for a specific bucket. If a CORS rule is configured for the bucket, PutBucketCORS overwrites the existing rule. By default, CORS is disabled for buckets. All cross-origin requests are not allowed.

Usage notes

When you call PutBucketCors, take note of the following items:

- Disabled-by-default design

  By default, CORS is disabled for buckets. All cross-origin requests are not allowed.

- Overwriting mechanism

  When you call PutBucketCors to configure a new CORS rule for a bucket for which a CORS rule is already configured, the existing rule is overwritten.

- Usage in applications

  When you use CORS in applications, you must call PutBucketCors to configure a CORS rule to enable CORS.

  For example, if you want to use the `XMLHttpRequest` feature of your browser to access OSS from the domain name `www.a.com`, you must call PutBucketCORS to configure a CORS rule that is described by an XML message body.

- CORS rule matching

  When OSS receives a cross-origin request or an OPTIONS request sent for a bucket, OSS reads the CORS rules configured for the bucket and checks the permission of the request. OSS matches the request with the rules one by one. When OSS finds the first match, OSS returns a corresponding header in the response. If no match is found, OSS does not include any CORS header in the response.

  The following conditions must be met before OSS determines that a CORS rule matches the request:

  - The origin from which the request is initiated must match the value of one `AllowedOrigin` element in the CORS rule.
  - The method of the request such as GET or PUT or the method corresponding to the `Access-Control-Request-Method` header in an OPTIONS request must match the value of one `AllowedMethod` element in the CORS rule.
  - Each header included in `Access-Control-Request-Headers` in an OPTIONS request must match the value of one `AllowedHeader` element in the CORS rule.

Request structure

```
PUT /? cors HTTP/1.1
Date: GMT Date
Content-Length: ContentLength
Content-Type: application/xml
Host: BucketName.regionid.example.com
Authorization: SignatureValue
<? xml version="1.0" encoding="UTF-8"? >
<CORSConfiguration>
    <CORSRule>
      <AllowedOrigin>the origin you want allow CORS request from</AllowedOrigin>
      <AllowedOrigin>… </AllowedOrigin>
      <AllowedMethod>HTTP method</AllowedMethod>
      <AllowedMethod>… </AllowedMethod>
        <AllowedHeader> headers that allowed browser to send</AllowedHeader>
          <AllowedHeader>… </AllowedHeader>
          <ExposeHeader> headers in response that can access from client app</ExposeHeader>
          <ExposeHeader>… </ExposeHeader>
          <MaxAgeSeconds>time to cache pre-fight response</MaxAgeSeconds>
    </CORSRule>
    <CORSRule>
      …
    </CORSRule>
…
</CORSConfiguration >
```

Request elements

Element	Type	Required	Example	Description
CORSRule	Container	Yes	N/A	The container for CORS rules. A maximum of 10 rules can be configured for each bucket.
AllowedOrigin	String	Yes	*	The origin from which a request is allowed. You can use multiple elements to specify multiple origins. Each rule can contain only one asterisk (*) as the wildcard. If AllowedOrigin is set to an asterisk (*), all cross-origin requests are allowed.
AllowedMethod	Enumerated string	Yes	GET	The cross-origin request methods that are allowed. Valid values: GET, PUT, DELETE, POST, and HEAD

Element	Type	Required	Example	Description
AllowedHeader	String	No	Authorization	Specifies whether the headers specified by Access-Control-Request-Headers in the preflight (OPTIONS) request are allowed. Each header specified by Access-Control-Reqluest-Headers must match the value of an AllowedHeader element. Each rule can contain only one asterisk (*) as the wildcard.
ExposeHeader	String	No	x-oss-test	The list of headers that can be exposed to the browser. The headers are the response headers that allow access from an application such as XMLHttpRequest in JavaScript. Asterisks (*) cannot be included as wildcards in the value of this parameter.
CORSConfiguration	Container	Yes	N/A	The container that stores the CORS rules configured for a bucket.
MaxAgeSeconds	Integer	No	100	The time the browser can cache the response to a preflight (OPTIONS) request to a specific resource. Unit: seconds. Only one MaxAgeSeconds element can be configured for each CORS rule.

Response headers

The response headers involved in the PutBucketcors operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
PUT /? cors HTTP/1.1
Host: ***.regionid.example.com
Content-Length: 186
Date: Fri, 04 May 2012 03:21:12 GMT
Authorization: OSS q***A=
<? xml version="1.0" encoding="UTF-8"? >
<CORSConfiguration>
    <CORSRule>
      <AllowedOrigin>*</AllowedOrigin>
      <AllowedMethod>PUT</AllowedMethod>
      <AllowedMethod>GET</AllowedMethod>
      <AllowedHeader>Authorization</AllowedHeader>
    </CORSRule>
    <CORSRule>
      <AllowedOrigin>http://www.a.com</AllowedOrigin>
      <AllowedOrigin>http://www.b.com</AllowedOrigin>
      <AllowedMethod>GET</AllowedMethod>
      <AllowedHeader> Authorization</AllowedHeader>
      <ExposeHeader>x-oss-test</ExposeHeader>
      <ExposeHeader>x-oss-test1</ExposeHeader>
      <MaxAgeSeconds>100</MaxAgeSeconds>
    </CORSRule>
</CORSConfiguration >
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***F
Date: Fri, 04 May 2012 03:21:12 GMT
Content-Length: 0
Connection: keep-alive
Server: AliyunOSS
```

6.1.1.8.3. GetBucketcors

You can call this operation to query the existing CORS rules of a specified bucket.

Request structure

```
GET /? cors HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

The request headers involved in the GetBucketcors operation contain only common request headers. For more information, see Common request headers.

Response elements

Element	Type	Example	Description
CORSRule	Container	N/A	The container that stores CORS rules. Up to 10 rules can be configured for a bucket.
AllowedOrigin	String	*	The sources from which cross-origin requests are allowed. If AllowedOrigin is set to an asterisk (*), cross-origin requests from all sources are allowed.
AllowedMethod	Enumerated string	GET	The cross-origin request methods that are allowed. Valid values: GET, PUT, DELETE, POST, and HEAD
AllowedHeader	String	*	Indicates whether the headers specified by Access-Control-Request-Headers in the OPTIONS preflight request are allowed. Each header specified by Access-Control-Request-Headers must match the value of an AllowedHeader element.
ExposeHeader	String	x-oss-test	The response headers for allowed access requests from applications, such as an XMLHttpRequest object in JavaScript.
MaxAgeSeconds	Integer	100	The period of time within which the browser can cache the response for an OPTIONS preflight request to specific resources. A CORS rule can contain only one MaxAgeSeconds parameter.
CORSConfiguration	Container	N/A	The container that stores the CORS rules configured for a bucket.

Examples

Sample requests

```
Get /? cors HTTP/1.1
Host: ***.regionid.example.com
Date: Thu, 13 Sep 2012 07:51:28 GMT
Authorization: OSS q***w=
```

Sample responses if CORS rules exist

```
HTTP/1.1 200
x-oss-request-id: 5***F
Date: Thu, 13 Sep 2012 07:51:28 GMT
Connection: keep-alive
Content-Length: 218
Server: AliyunOSS
<? xml version="1.0" encoding="UTF-8"? >
<CORSConfiguration>
    <CORSRule>
      <AllowedOrigin>*</AllowedOrigin>
      <AllowedMethod>GET</AllowedMethod>
      <AllowedHeader>*</AllowedHeader>
      <ExposeHeader>x-oss-test</ExposeHeader>
      <MaxAgeSeconds>100</MaxAgeSeconds>
    </CORSRule>
</CORSConfiguration>
```

6.1.1.8.4. DeleteBucketcors

You can call this operation to delete CORS rules.

Request structure

```
DELETE /? cors HTTP/1.1
Host: BucketName.regionid.example.com
Date: GMT Date
Authorization: SignatureValue
```

Request headers

Request headers involved in the DeleteBucketcors operation contain only common request headers. For more information, see Common request headers.

Response headers

Response headers involved in the DeleteBucketcors operation contain only common response headers. For more information, see Common response headers.

Examples

Sample requests

```
DELETE /? cors HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 05:45:34 GMT
Authorization: OSS q***g=
```

Sample responses

```
HTTP/1.1 204 No Content
x-oss-request-id: 5***C
Date: Fri, 24 Feb 2012 05:45:34 GMT
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.8.5. OptionObject

Before a cross-origin request is sent, the browser sends a preflight (OPTIONS) request that includes a specific origin, HTTP method, and header information to OSS to determine whether to send the cross-origin request.

OSS allows you to call the PutBucketcors operation to enable CORS for buckets. OSS determines whether to allow the preflight request of the browser based on the specified rules after CORS is enabled. If OSS rejects this request or CORS is disabled, 403 Forbidden is returned.

Request structure

```
OPTIONS /ObjectName HTTP/1.1
Host: BucketName.regionid.example.com
Origin:Origin
Access-Control-Request-Method:HTTP method
Access-Control-Request-Headers:Request Headers
```

Request headers

Header	Type	Required	Example	Description
Origin	String	Yes	http://www.example.com	The origin of the request, used to identify a cross-origin request. Default value: null
Access-Control-Request-Method	String	Yes	PUT	The method to use in the cross-origin request. Default value: null
Access-Control-Request-Headers	String	Yes	x-oss-test	The request headers, except for standard headers, to use in the cross-origin request. Default value: null

Response headers

Header	Type	Example	Description
Access-Control-Allow-Origin	String	http://www.example.com	The origin that is included in the request. If the request is denied, the response does not contain the header.

Header	Type	Example	Description
Access-Control-Allow-Methods	String	PUT	The HTTP method of the request. If the request is denied, the response does not contain the header.
Access-Control-Allow-Headers	String	x-oss-test	The list of headers included in the request. If the request includes headers that are not allowed, the response does not contain the headers and the request is denied.
Access-Control-Expose-Headers	String	Content-Length	The list of headers that are accessible to JavaScript applications on a client.
Access-Control-Max-Age	Integer	100	The maximum duration for the browser to cache preflight results. Unit: seconds.

Examples

Sample requests

```
OPTIONS /testobject HTTP/1.1
Host: ***.regionid.example.com
Date: Fri, 24 Feb 2012 05:45:34 GMT
Origin:http://www.example.com
Access-Control-Request-Method:PUT
Access-Control-Request-Headers:x-oss-test
```

Sample responses

```
HTTP/1.1 200 OK
x-oss-request-id: 5***C
Date: Fri, 24 Feb 2012 05:45:34 GMT
Access-Control-Allow-Origin: http://www.example.com
Access-Control-Allow-Methods: PUT
Access-Control-Expose-Headers: x-oss-test
Connection: keep-alive
Content-Length: 0
Server: AliyunOSS
```

6.1.1.9. Error responses

If an error occurs when you access OSS, OSS returns the error code and error message so that you can locate and rectify the error.

OSS error response format

If an error occurs when you access OSS, OSS returns HTTP status code 3xx, 4xx, or 5xx and a message body in the application/xml format.

Example of an error response body:

```
<? xml version="1.0" ? >
<Error xmlns="http://doc.oss-cn-hangzhou.aliyuncs.com">
 <Code>
 AccessDenied
 </Code>
 <Message>
 Query-string authentication requires the Signature, Expires and OSSAccessKeyId parameters
 </Message>
 <RequestId>
 1D842BC5425544BB
 </RequestId>
 <HostId>
 regionid.example.com
 </HostId>
</Error>
```

All error message bodies include the following elements:

- Code: the error code that OSS returns to the user.
- Message: the detailed error message provided by OSS.
- RequestId: the UUID that uniquely identifies a request. If a problem persists, submit the request ID to OSS technical support personnel to seek help.
- HostId: the ID of the host in the accessed OSS cluster, which is the same as the host ID specified in the request.

For more information about the elements in error messages, see specific request descriptions.

Error codes

The following table lists the OSS error codes.

Error codes

Error code	Description	HTTP status code
AccessDenied	The error message returned because the access is denied.	403
BucketAlreadyExists	The error message returned because the bucket already exists.	409
BucketNotEmpty	The error message returned because the bucket is not empty.	409
EntityTooLarge	The error message returned because the entity is too large.	400

Error code	Description	HTTP status code
EntityTooSmall	The error message returned because the entity is too small.	400
FieldItemTooLong	The error message returned because the total length of the form fields in the POST request exceeds the limit.	400
FilePartInterity	The error message returned because the part has changed.	400
FilePartNotExist	The error message returned because the part does not exist.	400
FilePartStale	The error message returned because the part has expired.	400
IncorrectNumberOfFilesInPOSTRequest	The error message returned because the number of objects in the POST request is invalid.	400
InvalidArgument	The error message returned because the parameter format is invalid.	400
InvalidAccessKeyId	The error message returned because the AccessKey ID does not exist.	403
InvalidBucketName	The error message returned because the bucket name is invalid.	400
InvalidDigest	The error message returned because Content-MD5 you specified is invalid.	400
InvalidEncryptionAlgorithmError	The error message returned because the specified encryption algorithm based on entropy encoding is invalid.	400
InvalidObjectName	The error message returned because the object name is invalid.	400
InvalidPart	The error message returned because the part is invalid.	400
InvalidPartOrder	The error message returned because the part sequence is invalid.	400

Error code	Description	HTTP status code
InvalidPolicyDocument	The error message returned because the content of the form does not meet the conditions specified in the policy document.	400
InvalidTargetBucketForLogging	The error message returned because the destination bucket specified for logging is invalid.	400
InternalError	The error message returned because an internal OSS error occurs.	500
MalformedXML	The error message returned because the XML format is invalid.	400
MalformedPOSTRequest	The error message returned because the format of the POST request body is invalid.	400
MaxPOSTPreDataLengthExceededError	The error message returned because the POST request body, excluding the object content to upload, is too large.	400
MethodNotAllowed	The error message returned because the method is not supported.	405
MissingArgument	The error message returned because the required parameters are not set.	411
MissingContentLength	The error message returned because the content length is not specified.	411
NoSuchBucket	The error message returned because the specified bucket does not exist.	404
NoSuchKey	The error message returned because the specified object does not exist.	404
NoSuchUpload	The error message returned because the specified multipart upload ID does not exist.	404
NotImplemented	The error message returned because the method cannot be implemented.	400

Error code	Description	HTTP status code
PreconditionFailed	The error message returned because the precondition you specified does not hold.	412
RequestTimeTooSkewed	The error message returned because the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes.	403
RequestTimeout	The error message returned because the request times out.	400
RequestIsNotMultiPartContent	The error message returned because the content-type value specified in the POST request is invalid.	400
SignatureDoesNotMatch	The error message returned because the request signature provided does not match the signature calculated by OSS.	403
TooManyBuckets	The error message returned because the number of the buckets in your account has exceeded the limit.	400

Operations not supported by OSS

If an operation not supported by OSS is performed to access a resource, OSS returns HTTP status code 405 and error code MethodNotAllowed.

Sample error requests

```
ABC /1.txt HTTP/1.1
Host: bucketname.regionid.example.com
Date: Thu, 11 Aug 2016 03:53:40 GMT
Authorization: signatureValue
```

Sample responses

```
HTTP/1.1 405 Method Not Allowed
Server: AliyunOSS
Date: Thu, 11 Aug 2016 03:53:44 GMT
Content-Type: application/xml
Content-Length: 338
Connection: keep-alive
x-oss-request-id: 57ABF6C8BC4D25D86CBA5ADE
Allow: GET DELETE HEAD PUT POST OPTIONS
<? xml version="1.0" encoding="UTF-8"? >
<Error>
 <Code>MethodNotAllowed</Code>
 <Message>The specified method is not allowed against this resource. </Message>
 <RequestId>57ABF6C8BC4D25D86CBA5ADE</RequestId>
 <HostId>bucketname.regionid.example.com</HostId>
 <Method>abc</Method>
 <ResourceType>Bucket</ResourceType>
</Error>
```

Note If the accessed resource is /bucket/, ResourceType must be set to Bucket. If the accessed resource is /bucket/object, ResourceType must be set to Object.

Operations supported by OSS but not supported by parameters

If parameters not supported by OSS are added to the request for the object supported by OSS (for example, the If-Modified-Since parameter is added to the PUT operation request), OSS returns 400 Bad Request.

Sample error requests

```
PUT /abc.zip HTTP/1.1
Host: bucketname.regionid.example.com
Accept: */*
Date: Thu, 11 Aug 2016 01:44:50 GMT
If-Modified-Since: Thu, 11 Aug 2016 01:43:51 GMT
Content-Length: 363
```

Sample responses

```
HTTP/1.1 400 Bad Request
Server: AliyunOSS
Date: Thu, 11 Aug 2016 01:44:54 GMT
Content-Type: application/xml
Content-Length: 322
Connection: keep-alive
x-oss-request-id: 57ABD896CCB80C366955187E
x-oss-server-time: 0
<? xml version="1.0" encoding="UTF-8"? >
<Error>
 <Code>NotImplemented</Code>
 <Message>A header you provided implies functionality that is not implemented. </Message>
 <RequestId>57ABD896CCB80C366955187E</RequestId>
 <HostId>bucketname.regionid.example.com</HostId>
 <Header>If-Modified-Since</Header>
</Error>
```

6.1.2. SDK reference

6.1.2.1. Java SDK

6.1.2.1.1. Preface

This topic is written for OSS SDK for Java version 3.8.0.

Compatibility

- For SDKs version 3.×.×:
  - API operation: compatible
  - Namespace: compatible
- For SDKs version 2.×.×:
  - API operation: compatible
  - Namespace: compatible
- For SDKs version 1.0.×:
  - API operation: compatible
  - Namespace: incompatible. The Tablestore code in version 1.0.x is removed from version 2.0.0. Package names `com.aliyun.openservices.*` and `com.aliyun.openservices.oss.*` are replaced with `com.aliyun.oss.*`.

SDK source code and API documents

For the SDK source code, visit GitHub. For more information, visit Aliyun OSS SDK for Java V3.8.0 API.

Sample code

OSS SDK for Java provides a variety of sample code for you to reference or use. The following table describes the sample code.

Sample file	Description
GetStartedSample.java	Shows you how to perform basic upload and download operations.
SimpleGetObjectSample.java	Shows you how to download objects.
ListObjectsSample.java	Shows you how to list objects.
DeleteObjectsSample.java	Shows you how to delete multiple objects at a time.
AppendObjectSample.java	Shows you how to use append upload.
ObjectMetaSample.java	Shows you how to use object metadata.
CreateFolderSample.java	Shows you how to create a folder. For more information about OSS folders, see the topic about folders.
UploadSample.java	Shows you how to use resumable upload.
DownloadSample.java	Shows you how to use resumable download.
ImageSample.java	Shows you how to use IMG.
PostObjectSample.java	Shows you how to use PostObject. The implementation is independent of OSS SDK for Java.
GetProgressSample.java	Shows you how to use progress bars in object upload and download.
CallbackSample.java	Shows you how to perform upload callback.
CRCSample.java	Shows you how to perform CRC for object upload and download.
BucketOperationsSample.java	Shows you how to configure a bucket, including configuring ACL, lifecycle, logging, hotlink protection, and CORS.
MultipartUploadSample.java	We recommend that you use the uploadFile operation to perform resumable upload for concurrent uploads implemented by the multipart upload API operation.
ConcurrentGetObjectSample.java	We recommend that you use the downloadFile operation to perform resumable download for concurrent downloads implemented by range download.
UploadPartCopySample.java	Shows you how to perform multipart copy for large objects.

6.1.2.1.2. Installation

This topic describes how to install OSS SDK for Java.

Prerequisites

- Environment

  Use Java 1.7 or later.

- Compatibility

  Run the `java -version` command to check the Java version.

Download the SDK

- Download directly
- Download from GitHub
- Download previous versions

Install the SDK

- Method 1: (Recommended) Add dependencies to your Maven project

  To use OSS SDK for Java in Maven, you need only to add the corresponding dependencies to the pom.xml file. For example, when you use OSS SDK for Java version 3.8.0, add the following content to <dependencies>:

  ```
  <dependency>
      <groupId>com.aliyun.oss</groupId>
      <artifactId>aliyun-sdk-oss</artifactId>
      <version>3.8.0</version>
  </dependency>
  ```

- Method 2: Import the JAR package to your Eclipse project

  For example, when you use OSS SDK for Java version 3.8.0, take the following steps to install the SDK:

  i. Download the OSS SDK for Java package.
  ii. Decompress the package.
  iii. Copy the *aliyun-sdk-oss-3.8.0.jar* file and all files in the lib directory to your project.
  iv. Right-click your project name in Eclipse. Choose **Properties > Java Build Path > Add JARs**.
  v. Select all JAR files that you have copied in Step 3 and import them to Libraries.

- Method 3: Import the JAR package to your IntelliJ IDEA project

  For example, when you use OSS SDK for Java version 3.8.0, take the following steps to install the SDK:

  i. Download the OSS SDK for Java package.
  ii. Decompress the package.
  iii. Copy the *aliyun-sdk-oss-3.8.0.jar* file and all JAR files in the lib directory to your project.
  iv. In IntelliJ IDEA, select your project and choose **File > Project Structure > Modules > Dependencies > + > JARs or directories**.
  v. Select all JAR files that you have copied in Step 3 and import them to External Libraries.

6.1.2.1.3. Initialization

OSSClient serves as the Java client to manage OSS resources such as buckets and objects. To use OSS SDK for Java to initiate a request, you must initialize an OSSClient instance and modify the default configuration items of ClientConfiguration.

Create an OSSClient instance

To create an OSSClient instance, you must specify an endpoint. For more information about endpoints, see Obtain an endpoint.

To create an OSSClient instance, you must specify an AccessKey pair. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

- Create an OSSClient instance based on an OSS endpoint

  The following code provides an example on how to create an OSSClient instance based on an OSS endpoint:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

  You can use one or more OSSClient instances for your project. In other words, you can use multiple OSSClient instances simultaneously.

- Create an OSSClient instance based on Apsara Stack or a private region

  The following code provides an example on how to create an OSSClient instance based on Apsara Stack or a private region:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create a ClientConfiguration instance and modify the default parameters based on your
requirements.
ClientBuilderConfiguration conf = new ClientBuilderConfiguration();
// Disable CNAME.
conf.setSupportCname(false);
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, conf
);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Create an OSSClient instance based on an IP address

  The following code provides an example on how to create an OSSClient instance based on an IP address:

```
// In some special cases such as a private region, the IP address is used as the endpoint
. In such cases, specify the actual IP address based on your requirements.
String endpoint = "http://10.10.10.10";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create a ClientConfiguration instance.
ClientBuilderConfiguration conf = new ClientBuilderConfiguration();
// By default, access from a second-level domain is disabled. Enable OSS access from a se
cond-level domain. You must configure this parameter for OSS SDK for Java version 2.1.2 o
r earlier. The versions later than OSS SDK for Java version 2.1.2 automatically detect IP
addresses.
conf.setSLDEnabled(true);
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, conf
);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Create an OSSClient instance based on STS

  The following code provides an example on how to create an OSSClient instance based on Security Token Service (STS):

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String securityToken = "<yourSecurityToken>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, secu
rityToken);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Configure an OSSClient instance

ClientConfiguration is a configuration class of OSSClient. You can use ClientConfiguration to configure parameters such as host proxies, connection timeouts, and the maximum number of connections. The following table describes the parameters of this operation.

Parameter	Description	Configuration method
MaxConnections	The maximum number of HTTP connections that are allowed. Default value: 1024.	ClientConfiguration.setMaxConnections
SocketTimeout	The timeout period for data transmission at the socket layer. Unit: milliseconds. Default value: 50000.	ClientConfiguration.setSocketTimeout

Parameter	Description	Configuration method
ConnectionTimeout	The timeout period for establishing a connection. Unit: milliseconds. Default value: 50000.	ClientConfiguration.setConnectionTimeout
ConnectionRequestTimeout	The timeout period to obtain a connection from the connection pool. Unit: milliseconds. By default, this parameter is not configured.	ClientConfiguration.setConnectionRequestTimeout
IdleConnectionTime	The idle connection timeout period to close the connection. Unit: milliseconds. Default value: 60000.	ClientConfiguration.setIdleConnectionTime
MaxErrorRetry	The maximum number of allowed retry attempts in the case of a request error. Default value: 3.	ClientConfiguration.setMaxErrorRetry
SupportCname	Specifies whether CNAME can be used as an endpoint. By default, CNAME can be used as an endpoint.	ClientConfiguration.setSupportCname
SLDEnabled	Specifies whether access over second-level domains is enabled. By default, access over second-level domains is disabled.	ClientConfiguration.setSLDEnabled
Protocol	The protocol used to connect to OSS. Default value: HTTP. Valid values: HTTP and HTTPS.	ClientConfiguration.setProtocol
UserAgent	The user agent in the HTTP header. Default value: aliyun-sdk-java.	ClientConfiguration.setUserAgent
ProxyHost	The IP address to access the proxy host.	ClientConfiguration.setProxyHost
ProxyPort	The port for the proxy host.	ClientConfiguration.setProxyPort
ProxyUsername	The username verified by the proxy host.	ClientConfiguration.setProxyUsername
ProxyPassword	The password verified by the proxy host.	ClientConfiguration.setProxyPassword

The following code provides an example on how to configure parameters for an OSSClient instance with ClientConfiguration:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "https://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create a ClientConfiguration instance. ClientConfiguration is a configuration class of OSSClient. You can use ClientConfiguration to configure parameters such as host proxies, connection timeouts, and the maximum number of connections.
ClientBuilderConfiguration conf = new ClientBuilderConfiguration();
// Configure the maximum number of HTTP connections allowed by an OSSClient instance. Default value: 1024.
conf.setMaxConnections(200);
// Configure the timeout period for data transmission at the socket layer. Unit: milliseconds. Default value: 50000.
conf.setSocketTimeout(10000);
// Configure the timeout period for establishing a connection. Unit: milliseconds. Default value: 50000.
conf.setConnectionTimeout(10000);
// Configure the timeout period for obtaining a connection from the connections pool. Unit: milliseconds. By default, this parameter is not configured.
conf.setConnectionRequestTimeout(1000);
// Configure the timeout period for idle connections. The connection is closed when the timeout period expires. Unit: milliseconds. Default value: 60000.
conf.setIdleConnectionTime(10000);
// Configure the maximum number of allowed retry attempts in the case of a request error. Default value: 3.
conf.setMaxErrorRetry(5);
// Configure whether CNAME can be used as an endpoint. By default, CNAME can be used as an endpoint.
conf.setSupportCname(true);
// Configure whether access from second-level domains is enabled. By default, access from second-level domains is disabled.
conf.setSLDEnabled(true);
// Configure the protocol used to connect to OSS. Default value: HTTP. Valid values: HTTP and HTTPS.
conf.setProtocol(Protocol.HTTP);
// Configure the user agent in the HTTP header. Default value: aliyun-sdk-java.
conf.setUserAgent("aliyun-sdk-java");
// Configure the port for the proxy host.
conf.setProxyHost("<yourProxyHost>");
// Configure the username verified by the proxy host.
conf.setProxyUsername("<yourProxyUserName>");
// Configure the password verified by the proxy host.
conf.setProxyPassword("<yourProxyPassword>");
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, conf);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.4. Quick start

This topic describes how to use OSS SDK for Java to complete routine operations such as create buckets, upload objects, and download objects.

Sample projects

OSS SDK for Java provides Maven- and Ant-based sample projects. You can compile and run the sample projects on local devices or develop your own applications based on the sample projects. For more information about how to compile and run a project, see README.md in the project directory.

- Maven-based sample project: aliyun-oss-java-sdk-demo-mvn.zip
- Ant-based sample project: aliyun-oss-java-sdk-demo-ant.zip

Create a bucket

A bucket is a global namespace in OSS. A bucket is a container for objects stored in OSS. The following code provides an example on how to create a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a bucket.
ossClient.createBucket(bucketName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about how to obtain an AccessKey ID and AccessKey secret, see Obtain an AccessKey pair.

For more information about how to obtain an endpoint, see Obtain an endpoint.

Upload objects

The following code provides an example on how to upload an object to OSS:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Upload content to a specified bucket and save it by using the specified object name.
String content = "Hello OSS";
ossClient.putObject(bucketName, objectName, new ByteArrayInputStream(content.getBytes()));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Download an object

The following code provides an example on how to query the content of an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Call ossClient.getObject to query an OSSObject instance. The OSSObject instance contains the content and metadata of the object.
OSSObject ossObject = ossClient.getObject(bucketName, objectName);
// Call ossObject.getObjectContent to query an input stream of the object. Read the input stream to query the content of the object.
InputStream content = ossObject.getObjectContent();
if (content ! = null) {
    BufferedReader reader = new BufferedReader(new InputStreamReader(content));
    while (true) {
        String line = reader.readLine();
        if (line == null) break;
        System.out.println("\n" + line);
    }
    // You must close the connection after each use to prevent connection leaks. Otherwise, requests may be unable to establish connections and the program cannot run properly.
    content.close();
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List objects

The following code provides an example on how to list objects in a specified bucket. By default, a maximum of 100 objects are listed.

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Call ossClient.listObjects to obtain an ObjectListing instance. The ObjectListing instance contains the response to the listObject request.
ObjectListing objectListing = ossClient.listObjects(bucketName);
// Call objectListing.getObjectSummaries to query the descriptions of all objects.
for (OSSObjectSummary objectSummary : objectListing.getObjectSummaries()) {
    System.out.println(" - " + objectSummary.getKey() + "  " +
            "(size = " + objectSummary.getSize() + ")");
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete objects

For the complete code used to delete objects, visit GitHub.

The following code provides an example on how to delete an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Delete the object.
ossClient.deleteObject(bucketName, objectName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5. Buckets

6.1.2.1.5.1. Create buckets

A bucket is a container for objects stored in OSS. Every object is contained in a bucket. This topic describes how to create a bucket.

The following code provides an example on how to create a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a bucket.
ossClient.createBucket(bucketName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.2. List buckets

A bucket is a container for objects stored in OSS. Every object is contained in a bucket. This topic describes how to list buckets.

Buckets are listed in alphabetical order. You can list all buckets or only buckets that meet specified conditions. To list buckets of the IA or Archive storage class, use OSS SDK for Java version 2.6.0 or later.

List all buckets

The following code provides an example on how to list all buckets:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List all buckets.
List<Bucket> buckets = ossClient.listBuckets();
for (Bucket bucket : buckets) {
    System.out.println(" - " + bucket.getName());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List buckets whose names contain a specified prefix

The following code provides an example on how to list buckets whose names contain a specified prefix:

```
ListBucketsRequest listBucketsRequest = new ListBucketsRequest();
// List buckets whose names contain a specified prefix.
listBucketsRequest.setPrefix("<yourBucketPrefix>");
BucketList bucketList = ossClient.listBuckets(listBucketsRequest);
for (Bucket bucket : bucketList.getBucketList()) {
    System.out.println(" - " + bucket.getName());
}
```

List buckets whose names come after a specified marker

The marker parameter specifies the name of the bucket after which the list begins. The following code provides an example on how to list buckets whose names come after a specified marker:

```
ListBucketsRequest listBucketsRequest = new ListBucketsRequest();
// List buckets whose names come after the specified marker.
listBucketsRequest.setMarker("<yourBucketMarker>");
BucketList bucketList = ossClient.listBuckets(listBucketsRequest);
for (Bucket bucket : bucketList.getBucketList()) {
    System.out.println(" - " + bucket.getName());
}
```

List a specified number of buckets

The following code provides an example on how to specify the maxKeys parameter to list a specified number of buckets:

```
ListBucketsRequest listBucketsRequest = new ListBucketsRequest();
// Set the maximum number of buckets to list each time to 500. The default value is 100. Th
e maximum value is 1000.
listBucketsRequest.setMaxKeys(500);
BucketList bucketList = ossClient.listBuckets(listBucketsRequest);
for (Bucket bucket : bucketList.getBucketList()) {
    System.out.println(" - " + bucket.getName());
}
```

6.1.2.1.5.3. Determine whether buckets exist

A bucket is a container for objects stored in OSS. Every object is contained in a bucket. This topic describes how to determine whether a bucket exists.

The following code provides an example on how to determine whether a specific bucket exists:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to log on to OSS because the account has permissions on all API operations. We recommend that you use a RAM user to call API operations or perform routine operations and maintenance. To create a RAM user, log on to https://ram.console.aliyun.com.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
boolean exists = ossClient.doesBucketExist("<yourBucketName>");
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.4. Manage bucket ACLs

A bucket is a container for objects stored in OSS. Every object is contained in a bucket. This topic describes how to configure and obtain the access control list (ACL) of a bucket.

Configure ACL for a bucket

The following table describes the ACLs for buckets.

ACL	Description	Value
Private	Only the owner or authorized users of the bucket can read and write the object.	CannedAccessControlList.Private
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	CannedAccessControlList.PublicRead
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	CannedAccessControlList.PublicReadWrite

The following code provides an example on how to configure ACL for a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Set the ACL of the bucket to private.
ossClient.setBucketAcl("<yourBucketName>", CannedAccessControlList.Private);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Query the ACL of a bucket

The following code provides an example on how to query the ACL of a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Query the ACL of the bucket.
AccessControlList acl = ossClient.getBucketAcl("<yourBucketName>");
System.out.println(acl.toString());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.5. Delete buckets

A bucket is a container for objects stored in OSS. Every object is contained in a bucket. This topic describes how to delete a bucket.

> **Note** Before you delete a bucket, you must delete all objects and parts generated by multipart upload in the bucket.

The following code provides an example on how to delete a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Delete the bucket.
ossClient.deleteBucket("<yourBucketName>");
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.6. Manage lifecycle rules

You can configure lifecycle rules for an OSS bucket to automatically delete expired objects to save storage space. This topic describes how to manage lifecycle rules.

Background

Each lifecycle rule contains the following information:

- Policy: specifies the mode to match objects and parts.
  - Match by prefix: matches objects and parts by prefix. You can create multiple rules to configure different prefixes. Each prefix must be unique.
  - Match by bucket: matches all objects and parts contained in the bucket. You can create only one rule if you select this method.
- Object lifecycle policy: specifies the validity period or expiration data and the operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired objects are deleted.
  - Expiration date: specifies a date. Objects that are last modified before this date expire and are deleted.
- Part lifecycle policy: specifies the validity period or expiration time and the delete operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired parts are deleted.
  - Expiration date: specifies a date. Parts that are last modified before this date expire and are deleted.

Lifecycle rules also apply to the parts uploaded by using uploadPart. In this case, the last modified time of an object is the time the multipart upload task is initiated.

Configure lifecycle rules

The following code provides an example on how to configure lifecycle rules:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
SetBucketLifecycleRequest request = new SetBucketLifecycleRequest(bucketName);
// Set the rule ID and the prefix of object names to match the rule.
String ruleId0 = "rule0";
String matchPrefix0 = "A0/";
String ruleId1 = "rule1";
String matchPrefix1 = "A1/";
String ruleId2 = "rule2";
String matchPrefix2 = "A2/";
String ruleId3 = "rule3";
String matchPrefix3 = "A3/";
// Specify that objects expire three days after they are last modified.
request.AddLifecycleRule(new LifecycleRule(ruleId0, matchPrefix0, RuleStatus.Enabled, 3));
// Specify that the objects that are last modified before the specified date expire.
LifecycleRule rule = new LifecycleRule(ruleId1, matchPrefix1, RuleStatus.Enabled);
rule.setCreatedBeforeDate(DateUtil.parseISO8601Date("2022-10-12T00:00:00.000Z"));
request.AddLifecycleRule(rule);
// Specify that parts expire three days after they are last modified.
rule = new LifecycleRule(ruleId2, matchPrefix2, RuleStatus.Enabled);
LifecycleRule.AbortMultipartUpload abortMultipartUpload = new LifecycleRule.AbortMultipartUpload();
abortMultipartUpload.setExpirationDays(3);
rule.setAbortMultipartUpload(abortMultipartUpload);
request.AddLifecycleRule(rule);
// Specify that the parts that are last modified before the specified date expire.
rule = new LifecycleRule(ruleId3, matchPrefix3, RuleStatus.Enabled);
abortMultipartUpload = new LifecycleRule.AbortMultipartUpload();
abortMultipartUpload.setCreatedBeforeDate(DateUtil.parseISO8601Date("2022-10-12T00:00:00.000Z"));
rule.setAbortMultipartUpload(abortMultipartUpload);
request.AddLifecycleRule(rule);
ossClient.setBucketLifecycle(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

View lifecycle rules

The following code provides an example on how to view lifecycle rules:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
List<LifecycleRule> rules = ossClient.getBucketLifecycle(bucketName);
for (LifecycleRule rule : rules) {
    System.out.println(rule.getId());
    System.out.println(rule.getPrefix());
    System.out.println(rule.getExpirationDays());
    System.out.println(rule.getCreatedBeforeDate());
    if(rule.hasAbortMultipartUpload()) {
        System.out.println(rule.getAbortMultipartUpload().getExpirationDays());
        System.out.println(rule.getAbortMultipartUpload().getCreatedBeforeDate());
    }
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete lifecycle rules

The following code provides an example on how to delete the lifecycle rules configured for a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
ossClient.deleteBucketLifecycle(bucketName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.7. Configure hotlink protection

OSS provides hotlink protection to prevent unauthorized domain names from accessing your OSS data. You can configure the Referer field in the HTTP header.

To configure hotlink protection, you must configure the following parameters:

- Referer Whitelist: Only specified domain names are allowed to access OSS resources.
- Allow Empty Referer: If you do not allow empty Refer fields, a request is allowed to access OSS resources only if the request includes the Referer field configured in the HTTP or HTTPS header.

Configure a Referer whitelist

The following code provides an example on how to configure the Referer whitelist for a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
List<String> refererList = new ArrayList<String>();
// Add Referer values to the whitelist. You can use an asterisk (*) or a question mark (?) as a wildcard to set the Referer parameter.
refererList.add("http://www.aliyun.com");
refererList.add("http://www. *.com");
refererList.add("http://www.?.aliyuncs.com");
// Configure BucketReferer. A value of true indicates that an empty Referer field is allowed.
BucketReferer br = new BucketReferer(true, refererList);
ossClient.setBucketReferer(bucketName, br);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Query the hotlink configurations of a bucket

The following code provides an example on how to query the hotlink configurations of a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Query the Referer whitelist of the bucket.
BucketReferer br = ossClient.getBucketReferer(bucketName);
List<String> refererList = br.getRefererList();
for (String referer : refererList) {
    System.out.println(referer);
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete the hotlink configurations of a bucket

The following code provides an example on how to delete the hotlink configurations of a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// You cannot delete a Referer whitelist directly. To delete a Referer whitelist, you must create a rule that allows an empty Referer field to replace the existing rule.
BucketReferer br = new BucketReferer();
ossClient.setBucketReferer(bucketName, br);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.8. Configure CORS

Cross-origin resource sharing (CORS) allows web applications to access resources that belong to different regions. OSS provides CORS operations to facilitate cross-origin access control.

Configure CORS rules

The following code provides an example on how to configure CORS rules for a specific bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
SetBucketCORSRequest request = new SetBucketCORSRequest(bucketName);
// Create a container for the CORS rules. A maximum of 10 CORS rules can be configured for each bucket.
ArrayList<CORSRule> putCorsRules = new ArrayList<CORSRule>();
CORSRule corRule = new CORSRule();
ArrayList<String> allowedOrigin = new ArrayList<String>();
// Specify the allowed origins from which CORS requests are sent.
allowedOrigin.add( "http://www.b.com");
ArrayList<String> allowedMethod = new ArrayList<String>();
// Specify the HTTP methods that CORS requests are allowed to use, including GET, PUT, DELETE, POST, and HEAD.
allowedMethod.add("GET");
ArrayList<String> allowedHeader = new ArrayList<String>();
// Determine whether to allow the header specified in Access-Control-Request-Headers of the preflight (OPTIONS) request.
allowedHeader.add("x-oss-test");
ArrayList<String> exposedHeader = new ArrayList<String>();
// Specify the response headers that you are allowed to access from applications.
exposedHeader.add("x-oss-test1");
// You can use only one asterisk (*) as the wildcard for AllowedOrigins and AllowedMethods in a CORS rule. Asterisks (*) indicate to allow all origins or operations.
corRule.setAllowedMethods(allowedMethod);
corRule.setAllowedOrigins(allowedOrigin);
// AllowedHeaders and ExposeHeaders do not support wildcards.
corRule.setAllowedHeaders(allowedHeader);
corRule.setExposeHeaders(exposedHeader);
// Specifies the time the browser can cache the response to a preflight (OPTIONS) request to a specific resource. Unit: seconds.
corRule.setMaxAgeSeconds(10);
// You can configure up to 10 CORS rules for the bucket.
putCorsRules.add(corRule);
// The existing rules are replaced.
request.setCorsRules(putCorsRules);
ossClient.setBucketCORS(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Query CORS rules

The following code provides an example on how to query CORS rules configured for a specific bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
ArrayList<CORSRule> corsRules;
// Query the CORS rule list.
corsRules =  (ArrayList<CORSRule>) ossClient.getBucketCORSRules(bucketName);
for (CORSRule rule : corsRules) {
    for (String allowedOrigin1 : rule.getAllowedOrigins()) {
        // Query the allowed origins from which CORS requests are sent.
        System.out.println(allowedOrigin1);
    }
    for (String allowedMethod1 : rule.getAllowedMethods()) {
        // Query the allowed cross-origin request methods.
        System.out.println(allowedMethod1);
    }
    if (rule.getAllowedHeaders().size() > 0){
        for (String allowedHeader1 : rule.getAllowedHeaders()) {
            // Query the list of headers allowed in cross-origin requests.
            System.out.println(allowedHeader1);
        }
    }
    if (rule.getExposeHeaders().size() > 0) {
        for (String exposeHeader : rule.getExposeHeaders()) {
            // Query the list of response headers that can be accessed from an application.
            System.out.println(exposeHeader);
        }
    }
    if ( null ! = rule.getMaxAgeSeconds()) {
        System.out.println(rule.getMaxAgeSeconds());
    }
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete CORS rules

The following code provides an example on how to delete the CORS rules configured for a specific bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Delete the CORS rules configured for the bucket.
ossClient.deleteBucketCORSRules(bucketName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.9. Configure logging

You can enable logging to record access to a bucket in log objects, which are stored in a specified bucket.

The log objects are in the following format: `<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString`.

Enable logging

The following code provides an example on how to enable logging for a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
SetBucketLoggingRequest request = new SetBucketLoggingRequest("<yourSourceBucketName>");
// Specify the bucket used to store log objects.
request.setTargetBucket("<yourTargetBucketName>");
// Specify the folder where log objects are stored.
request.setTargetPrefix("<yourTargetPrefix>");
ossClient.setBucketLogging(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

View logging configurations

The following code provides an example on how to view the logging configurations of a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
BucketLoggingResult result = ossClient.getBucketLogging("<yourSourceBucketName>");
System.out.println(result.getTargetBucket());
System.out.println(result.getTargetPrefix());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Disable logging

The following code provides an example on how to disable logging for a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
SetBucketLoggingRequest request = new SetBucketLoggingRequest("<yourSourceBucketName>");
request.setTargetBucket(null);
request.setTargetPrefix(null);
ossClient.setBucketLogging(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.5.10. Configure static website hosting

This topic describes how to set your bucket to the static website hosting mode. After the configurations take effect, you can use the bucket domain name to access this static website and be redirected to a specified index page or error page.

Configure static website hosting

The following code provides an example on how to configure static website hosting:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
SetBucketWebsiteRequest request = new SetBucketWebsiteRequest("<yourBucketName>");
request.setIndexDocument("index.html");
request.setErrorDocument("error.html");
ossClient.setBucketWebsite(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

View static website hosting configurations

The following code provides an example on how to view static website hosting configurations:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
BucketWebsiteResult result = ossClient.getBucketWebsite("<yourBucketName>");
System.out.println(result.getIndexDocument());
System.out.println(result.getErrorDocument());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete static website hosting configurations

The following code provides an example on how to delete static website hosting configurations:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
ossClient.deleteBucketWebsite("<yourBucketName>");
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.6. Upload objects

6.1.2.1.6.1. Overview

This topic describes a variety of methods OSS SDK for Java provides to upload objects.

Objects are the basic unit for data operations in OSS. OSS SDK for Java provides the following object upload methods:

- Simple upload: includes streaming upload and local file upload. You can use this method to upload an object up to 5 GB in size.
- Form upload: uploads an object up to 5 GB in size.
- Append upload: uploads an object up to 5 GB in size.
- Resumable upload: supports concurrent upload and resumable upload in which you can define the size of each part. This method is suitable for the upload of large objects. You can use this method to upload an object up to 48.8 TB in size.
- Multipart upload: supports the upload of an object up to 48.8 TB in size. This method is suitable for the upload of large objects.

During object upload, you can configure object metadata and view upload progress by using a progress bar. After the object is uploaded, you can perform upload callback.

6.1.2.1.6.2. Simple upload

Simple upload allows you to use the PutObject operation to upload a single object to OSS. This topic describes how to perform simple upload by using OSS SDK for Java.

Simple upload includes stream upload and file upload. Stream upload uses InputStream as the source object. File upload uses a local file as the source object.

> **Note** For the complete code used to perform simple upload, visit GitHub.

Stream upload

Use ossClient.putObject to upload a data stream to OSS.

- Upload a string

  The following code provides an example on how to upload a string:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a PutObjectRequest object.
String content = "Hello OSS";
// <yourObjectName> indicates the complete path of the object you want to upload to OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
PutObjectRequest putObjectRequest = new PutObjectRequest("<yourBucketName>", "<yourObjectName>", new ByteArrayInputStream(content.getBytes()));
// Upload the string.
ossClient.putObject(putObjectRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Upload a byte array

  The following code provides an example on how to upload a byte array:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId,accessKeySecret);
// Upload the byte array.
byte[] content = "Hello OSS".getBytes();
ossClient.putObject("<yourBucketName>", "<yourObjectName>", new ByteArrayInputStream(content));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Upload a network stream

  The following code provides an example on how to upload a network stream:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Upload the network stream.
InputStream inputStream = new URL("https://www.aliyun.com/").openStream();
ossClient.putObject("<yourBucketName>", "<yourObjectName>", inputStream);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Upload a file stream

  The following code provides an example on how to upload a file stream:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Upload the file stream.
InputStream inputStream = new FileInputStream("<yourlocalFile>");
ossClient.putObject("<yourBucketName>", "<yourObjectName>", inputStream);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Local file upload

The following code provides an example on how to upload a local file to OSS:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a PutObjectRequest object.
PutObjectRequest putObjectRequest = new PutObjectRequest("<yourBucketName>", "<yourObjectNa
me>", new File("<yourLocalFile>"));
// Upload the local file.
ossClient.putObject(putObjectRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.6.3. Form upload

Form upload uses an HTML form to upload an object to a specified bucket. The maximum size of an object to upload is 5 GB.

The following code provides an example on how to implement form upload:

```
public class PostObjectSample {
    // Upload an object.
    private String localFilePath = "<yourLocalFile>";
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    private String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
    // Security risks may arise if you log on with the AccessKey pair of an Alibaba Cloud a
ccount because the account has permissions on all API operations. We recommend that you use
a RAM user's credentials to call API operations or perform routine operations and maintenan
ce. To create a RAM user, log on to https://ram.console.aliyun.com.
    private String accessKeyId = "<yourAccessKeyId>";
    private String accessKeySecret = "<yourAccessKeySecret>";
    // Specify the bucket name.
    private String bucketName = "<yourBucketName>";
```

```
    // Specify the object name.
    private String objectName = "<yourObjectName>";
    /**
     // Start form upload.
     * @throws Exception
     */
    private void PostObject() throws Exception {
        // Add the bucket name to the URL. The URL format is http://yourBucketName.oss-cn-h
angzhou.aliyuncs.com.
        String urlStr = endpoint.replace("http://", "http://" + bucketName+ ".") ;
        // Create a map for the form.
        Map<String, String> formFields = new LinkedHashMap<String, String>();
        // Specify the object name.
        formFields.put("key", this.objectName);
        // Configure Content-Disposition.
        formFields.put("Content-Disposition", "attachment;filename="
                + localFilePath);
        // Configure callback parameters.
        Callback callback = new Callback();
        // Configure the URL of the server to which you want to send the callback request.
Example: http://oss-demo.aliyuncs.com:23450 or http://127.0.0.1:9090.
        callback.setCallbackUrl("<yourCallbackServerUrl>");
        // Configure the Host header in the callback request. Example: oss-cn-hangzhou.aliy
uncs.com.
        callback.setCallbackHost("<yourCallbackServerHost>");
        // Configure the body field for the callback request.
        callback.setCallbackBody("{\\\"mimeType\\\":${mimeType},\\\"size\\\":${size}}");
        // Configure Content-Type for the callback request.
        callback.setCalbackBodyType(CalbackBodyType.JSON);
        // Configure the custom parameters used to send the callback request. Each custom p
arameter consists of a key-value pair. The key must start with x: and be in lower case.
        callback.addCallbackVar("x:var1", "value1");
        callback.addCallbackVar("x:var2", "value2");
        // Configure the callback parameter in Map for the form.
        setCallBack(formFields, callback);
        // Set OSSAccessKeyId.
        formFields.put("OSSAccessKeyId", accessKeyId);
        String policy = "{\"expiration\": \"2120-01-01T12:00:00.000Z\",\"conditions\": [[\"
content-length-range\", 0, 104857600]]}";
        String encodePolicy = new String(Base64.encodeBase64(policy.getBytes()));
        // Set the policy.
        formFields.put("policy", encodePolicy);
        // Set a signature.
        String signaturecom = com.aliyun.oss.common.auth.ServiceSignature.create().computeS
ignature(accessKeySecret, encodePolicy);
        // Set the signature.
        formFields.put("Signature", signaturecom);
        String ret = formUpload(urlStr, formFields, localFilePath);
        System.out.println("Post Object [" + this.objectName + "] to bucket [" + bucketName
+ "]");
        System.out.println("post reponse:" + ret);
    }
    private static String formUpload(String urlStr, Map<String, String> formFields, String
localFile)
```

```
            throws Exception {
        String res = "";
        HttpURLConnection conn = null;
        String boundary = "9431149156168";
        try {
            URL url = new URL(urlStr);
            conn = (HttpURLConnection) url.openConnection();
            conn.setConnectTimeout(5000);
            conn.setReadTimeout(30000);
            conn.setDoOutput(true);
            conn.setDoInput(true);
            conn.setRequestMethod("POST");
            conn.setRequestProperty("User-Agent",
                    "Mozilla/5.0 (Windows; U; Windows NT 6.1; zh-CN; rv:1.9.2.6)");
            // Set the MD5 hash. The MD5 hash is calculated based on the entire body.
            conn.setRequestProperty("Content-MD5", "<yourContentMD5>");
            conn.setRequestProperty("Content-Type",
                    "multipart/form-data; boundary=" + boundary);
            OutputStream out = new DataOutputStream(conn.getOutputStream());
            // Recursively read all Map data in the form and write the data to the output s
tream.
            if (formFields ! = null) {
                StringBuffer strBuf = new StringBuffer();
                Iterator<Entry<String, String>> iter = formFields.entrySet().iterator();
                int i = 0;
                while (iter.hasNext()) {
                    Entry<String, String> entry = iter.next();
                    String inputName = entry.getKey();
                    String inputValue = entry.getValue();
                    if (inputValue == null) {
                        continue;
                    }
                    if (i == 0) {
                        strBuf.append("--").append(boundary).append("\r\n");
                        strBuf.append("Content-Disposition: form-data; name=\""
                                + inputName + "\"\r\n\r\n");
                        strBuf.append(inputValue);
                    } else {
                        strBuf.append("\r\n").append("--").append(boundary).append("\r\n");
                        strBuf.append("Content-Disposition: form-data; name=\""
                                + inputName + "\"\r\n\r\n");
                        strBuf.append(inputValue);
                    }
                    i++;
                }
                out.write(strBuf.toString().getBytes());
            }
            // Read the object and write it to the output stream.
            File file = new File(localFile);
            String filename = file.getName();
            String contentType = new MimetypesFileTypeMap().getContentType(file);
            if (contentType == null || contentType.equals("")) {
                contentType = "application/octet-stream";
            }
            StringBuffer strBuf = new StringBuffer();
```

```
            StringBuffer strBuf = new StringBuffer();
            strBuf.append("\r\n").append("--").append(boundary)
                    .append("\r\n");
            strBuf.append("Content-Disposition: form-data; name=\"file\"; "
                    + "filename=\"" + filename + "\"\r\n");
            strBuf.append("Content-Type: " + contentType + "\r\n\r\n");
            out.write(strBuf.toString().getBytes());
            DataInputStream in = new DataInputStream(new FileInputStream(file));
            int bytes = 0;
            byte[] bufferOut = new byte[1024];
            while ((bytes = in.read(bufferOut)) ! = -1) {
                out.write(bufferOut, 0, bytes);
            }
            in.close();
            byte[] endData = ("\r\n--" + boundary + "--\r\n").getBytes();
            out.write(endData);
            out.flush();
            out.close();
            // Read the returned data.
            strBuf = new StringBuffer();
            BufferedReader reader = new BufferedReader(new InputStreamReader(conn.getInputS
tream()));
            String line = null;
            while ((line = reader.readLine()) ! = null) {
                strBuf.append(line).append("\n");
            }
            res = strBuf.toString();
            reader.close();
            reader = null;
        } catch (Exception e) {
            System.err.println("Send post request exception: " + e);
            throw e;
        } finally {
            if (conn ! = null) {
                conn.disconnect();
                conn = null;
            }
        }
        return res;
    }
     private static void setCallBack(Map<String, String> formFields, Callback callback) {
        if (callback ! = null) {
            String jsonCb = OSSUtils.jsonizeCallback(callback);
            String base64Cb = BinaryUtil.toBase64String(jsonCb.getBytes());
            formFields.put("callback", base64Cb);
            if (callback.hasCallbackVar()) {
                Map<String, String> varMap = callback.getCallbackVar();
                for (Entry<String, String> entry : varMap.entrySet()) {
                    formFields.put(entry.getKey(), entry.getValue());
                }
            }
        }
    }
    public static void main(String[] args) throws Exception {
        PostObjectSample ossPostObject = new PostObjectSample();
```

```
        ossPostObject.PostObject();
    }
}
```

6.1.2.1.6.4. Append upload

OSS allows you to use append object to append content directly to the end of an object. This method applies to append objects.

You cannot perform copyObject for append objects.

The following code provides an example on how to perform append upload:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you log on with the AccessKey pair of an Alibaba Cloud account because the account has permissions on all API operations. We recommend that you use a RAM user's credentials to call API operations or perform routine operations and maintenance. To create a RAM user, log on to https://ram.console.aliyun.com.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String content1 = "Hello OSS A \n";
String content2 = "Hello OSS B \n";
String content3 = "Hello OSS C \n";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
ObjectMetadata meta = new ObjectMetadata();
// Specify the type of content you want to upload.
meta.setContentType("text/plain");
// Configure parameters by using AppendObjectRequest.
AppendObjectRequest appendObjectRequest = new AppendObjectRequest("<yourBucketName>", "<yourObjectName>", new ByteArrayInputStream(content1.getBytes()),meta);
// Configure a single parameter by using AppendObjectRequest.
// Specify the bucket name.
//appendObjectRequest.setBucketName("<yourBucketName>");
// Specify the object name.
//appendObjectRequest.setKey("<yourObjectName>");
// Specify the content you want to append. Two types of content are available: InputStream and File. Select InputStream.
//appendObjectRequest.setInputStream(new ByteArrayInputStream(content1.getBytes()));
// Specify the content you want to append. Two types of content are available: InputStream and File. Select File.
//appendObjectRequest.setFile(new File("<yourLocalFile>"));
// Specify object metadata. The specified object metadata takes effect from the first append.
//appendObjectRequest.setMetadata(meta);
// Start the first append.
// Configure the position where the object is appended based on the previous object length.
appendObjectRequest.setPosition(0L);
AppendObjectResult appendObjectResult = ossClient.appendObject(appendObjectRequest);
// Calculate the 64-bit CRC value. The value is calculated based on the ECMA-182 standard.
System.out.println(appendObjectResult.getObjectCRC());
// Start the second append.
// nextPosition indicates the position included in the next request, which is equal to the length of the current object.
appendObjectRequest.setPosition(appendObjectResult.getNextPosition());
appendObjectRequest.setInputStream(new ByteArrayInputStream(content2.getBytes()));
appendObjectResult = ossClient.appendObject(appendObjectRequest);
// Start the third append.
appendObjectRequest.setPosition(appendObjectResult.getNextPosition());
appendObjectRequest.setInputStream(new ByteArrayInputStream(content3.getBytes()));
appendObjectResult = ossClient.appendObject(appendObjectRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.6.5. Resumable upload

If the system stops responding during multipart upload, you can resume the upload by using the ListMultipartUploads and ListParts operations to retrieve all multipart upload tasks on an object and list the uploaded parts in each task. This method allows an upload task to be resumed from the last uploaded part.

The following code provides an example on how to perform resumable upload:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
ObjectMetadata meta = new ObjectMetadata();
// Specify the type of content you want to upload.
meta.setContentType("text/plain");
// Configure parameters by using UploadFileRequest.
UploadFileRequest uploadFileRequest = new UploadFileRequest("<yourBucketName>","<yourObject
Name>");
// Configure a single parameter by using UploadFileRequest.
// Specify the bucket name.
//uploadFileRequest.setBucketName("<yourBucketName>");
// Specify the object name.
//uploadFileRequest.setKey("<yourObjectName>");
// Specify the local file to upload.
uploadFileRequest.setUploadFile("<yourLocalFile>");
// Specify the number of threads for simultaneous upload. Default value: 1.
uploadFileRequest.setTaskNum(5);
// Specify the size of a part you want to upload. Valid values: 100 KB to 5 GB. The default
size of each part is calculated based on the formula: Default size of each part = Object si
ze/10000.
uploadFileRequest.setPartSize(1 * 1024 * 1024);
// Enable resumable upload. By default, resumable upload is disabled.
uploadFileRequest.setEnableCheckpoint(true);
// Specify the checkpoint file that records the upload results of each part. You need to co
nfigure this parameter when you enable resumable upload. This file stores progress informat
ion. If a part fails to be uploaded, you can continue the upload based on the progress info
rmation recorded in the checkpoint file. After the object is uploaded, the checkpoint file
is deleted. By default, this file is stored in uploadFile.ucp, which is the same directory
as that of the local file you want to upload.
uploadFileRequest.setCheckpointFile("<yourCheckpointFile>");
// Configure object metadata.
uploadFileRequest.setObjectMetadata(meta);
// Configure upload callback. The parameter type is Callback.
uploadFileRequest.setCallback("<yourCallbackEvent>");
// Start resumable upload.
ossClient.uploadFile(uploadFileRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.6.6. Multipart upload

OSS allows you to use multipart upload to split an object into several parts and upload them separately. After all parts are uploaded, you can combine the uploaded parts into a complete object to finish the upload.

To implement multipart upload, perform the following operations:

1. Initiate a multipart upload task.

   Call the ossClient.initiateMultipartUpload method to obtain a unique upload ID in OSS.

2. Upload the parts.

   Call the ossClient.uploadPart method to upload the parts.

   > **Note**
   > - Part numbers identify the relative positions of parts in an object that share the same upload ID. If you have uploaded a part and used its part number again to upload another part, the latter part overwrites the former part.
   > - OSS includes the MD5 hash of part data in the ETag header and returns the MD5 hash to the user.
   > - OSS calculates the MD5 hash of uploaded data and compares it with the MD5 hash calculated by the SDK. If the two hashes are different, the InvalidDigest error code is returned.

3. Complete the multipart upload task.

   After all parts are uploaded, call the ossClient.completeMultipartUpload method to combine these parts into a complete object.

The following code provides an example on how to perform multipart upload:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to upload to OSS. Th
e path must include the extension of the object name. Example: abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create an InitiateMultipartUploadRequest object.
InitiateMultipartUploadRequest request = new InitiateMultipartUploadRequest("<yourBucketNam
e>", "<yourObjectName>");
// Optional. Specify the storage class.
// ObjectMetadata metadata = new ObjectMetadata();
// metadata.setHeader(OSSHeaders.OSS_STORAGE_CLASS, StorageClass.Standard.toString());
// request.setObjectMetadata(metadata);
// Initiate a multipart upload task.
InitiateMultipartUploadResult upresult = ossClient.initiateMultipartUpload(request);
// Obtain an upload ID. The upload ID is the unique identification of a multipart upload ta
```

```
sk. You can initiate related requests based on the upload ID, such as canceling a multipart upload and querying a multipart upload.
String uploadId = upresult.getUploadId();
// partETags is a set of PartETags. A PartETag consists of an ETag and a part number.
List<PartETag> partETags =  new ArrayList<PartETag>();
// Calculate the total number of parts to upload.
final long partSize = 1 * 1024 * 1024L;   // 1MB
final File sampleFile = new File("<localFile>");
long fileLength = sampleFile.length();
int partCount = (int) (fileLength / partSize);
if (fileLength % partSize ! = 0) {
    partCount++;
 }
// Upload each part sequentially until all parts are uploaded.
for (int i = 0; i < partCount; i++) {
    long startPos = i * partSize;
    long curPartSize = (i + 1 == partCount) ? (fileLength - startPos) : partSize;
    InputStream instream = new FileInputStream(sampleFile);
    // Skip the uploaded parts.
    instream.skip(startPos);
    UploadPartRequest uploadPartRequest = new UploadPartRequest();
    uploadPartRequest.setBucketName(bucketName);
    uploadPartRequest.setKey(objectName);
    uploadPartRequest.setUploadId(uploadId);
    uploadPartRequest.setInputStream(instream);
    // Configure the size of each part. Each part except for the last part must be larger than 100 KB.
    uploadPartRequest.setPartSize(curPartSize);
    // Configure part numbers. Each part is configured with a part number. The number ranges from 1 to 10000. If you configure a number beyond the range, OSS returns an InvalidArgument error code.
    uploadPartRequest.setPartNumber( i + 1);
    // Parts are not necessarily uploaded in order. They may be uploaded from different OSS clients. OSS sorts the parts based on their part numbers and combines them to obtain a complete object.
    UploadPartResult uploadPartResult = ossClient.uploadPart(uploadPartRequest);
    // After you upload a part, OSS returns a result that contains a PartETag. The PartETag is stored in partETags.
    partETags.add(uploadPartResult.getPartETag());
}
// Create a CompleteMultipartUploadRequest object.
// When the multipart upload task is complete, you must provide all valid partETags. After OSS receives the partETags, OSS verifies the validity of all parts one by one. After all parts are validated, OSS combines these parts into a complete object.
CompleteMultipartUploadRequest completeMultipartUploadRequest =
        new CompleteMultipartUploadRequest(bucketName, objectName, uploadId, partETags);
// Optional. Set the ACL.
// completeMultipartUploadRequest.setObjectACL(CannedAccessControlList.PublicRead);
// Complete the multipart upload task.
CompleteMultipartUploadResult completeMultipartUploadResult = ossClient.completeMultipartUpload(completeMultipartUploadRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Cancel a multipart upload task

You can call the ossClient.abortMultipartUpload method to cancel a multipart upload task. If a multipart upload task is canceled, the upload ID can no longer be used to upload any parts. The parts uploaded by using that upload ID are also deleted.

The following code provides an example on how to cancel a multipart upload task:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Cancel the multipart upload task. The upload ID is returned by InitiateMultipartUpload.
AbortMultipartUploadRequest abortMultipartUploadRequest =
        new AbortMultipartUploadRequest("<yourBucketName>", "<yourObjectName>", "<uploadId>
");
ossClient.abortMultipartUpload(abortMultipartUploadRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List uploaded parts

You can call the ossClient.listParts method to list all parts that are uploaded by using the specified upload ID.

- Simple list

  The following code provides an example for simple list:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List uploaded parts. The upload ID is returned by InitiateMultipartUpload.
ListPartsRequest listPartsRequest = new ListPartsRequest("<yourBucketName>", "<yourObject
Name>", "<uploadId>");
 // Configure an upload ID.
 //listPartsRequest.setUploadId(uploadId);
 // Set the maximum number of parts to list on each page to 100. By default, a maximum of
1,000 parts can be listed.
 listPartsRequest.setMaxParts(100);
 // Specify the start point of the list. Only the parts whose part numbers are greater th
an the value of this parameter are listed.
 listPartsRequest.setPartNumberMarker(2);
PartListing partListing = ossClient.listParts(listPartsRequest);
for (PartSummary part : partListing.getParts()) {
    // Query part numbers.
    part.getPartNumber();
    // Query the part size.
    part.getSize();
    // Query the ETag.
    part.getETag();
    // Query the last modified time.
    part.getLastModified();
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List all uploaded parts

  By default, listParts can list up to 1,000 parts at a time. The following code provides an example on how to list more than 1,000 parts:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List all uploaded parts.
PartListing partListing;
ListPartsRequest listPartsRequest = new ListPartsRequest("<yourBucketName>", "<yourObject
Name>", "<uploadId>");
do {
    partListing = ossClient.listParts(listPartsRequest);
    for (PartSummary part : partListing.getParts()) {
        // Query part numbers.
        part.getPartNumber();
        // Query the part size.
        part.getSize();
        // Query the ETag.
        part.getETag();
        // Query the last modified time.
        part.getLastModified();
    }
// Specify the start point of the list. Only the parts whose part numbers are greater tha
n the value of this parameter are listed.
listPartsRequest.setPartNumberMarker(partListing.getNextPartNumberMarker());
} while (partListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown()
```

- List all uploaded parts by page

  The following code provides an example on how to specify the maximum number of parts to list on each page and list all uploaded parts by page:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List all uploaded parts by page.
PartListing partListing;
ListPartsRequest listPartsRequest = new ListPartsRequest("<yourBucketName>", "<yourObject
Name>", "<uploadId>");
// Set the maximum number of parts to list on each page to 100.
listPartsRequest.setMaxParts(100);
do {
    partListing = ossClient.listParts(listPartsRequest);
    for (PartSummary part : partListing.getParts()) {
        // Query part numbers.
        part.getPartNumber();
        // Query the part size.
        part.getSize();
        // Query the ETag.
        part.getETag();
        // Query the last modified time.
        part.getLastModified();
    }
    listPartsRequest.setPartNumberMarker(partListing.getNextPartNumberMarker());
} while (partListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List multipart upload tasks

You can call the ossClient.listMultipartUploads method to list all ongoing multipart upload tasks. Ongoing multipart upload tasks are tasks that are initiated but incomplete or tasks that are canceled. The following table describes the parameters.

Parameter	Description	Configuration method
prefix	Specifies that the returned object names must contain a specified prefix. Note that if you use a prefix for a query, the returned object names contain the prefix.	ListMultipartUploadsRequest.setPrefix(String prefix)
delimiter	Groups objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes.	ListMultipartUploadsRequest.setDelimiter(String delimiter)

Parameter	Description	Configuration method
maxUploads	Specifies the maximum number of multipart upload tasks to return. The default value is the same as the maximum value, which is 1000.	ListMultipartUploadsRequest.setMaxUploads(Integer maxUploads)
keyMarker	Specifies the key-marker value from which to start the list. Multipart upload tasks are listed in alphabetical order of their object names. You can use this parameter with the uploadIdMarker parameter to specify the start point to list the returned results.	ListMultipartUploadsRequest.setKeyMarker(String keyMarker)
uploadIdMarker	UploadIdMarker is used with the keyMarker parameter to specify the start point to list the returned results. If the keyMarker parameter is not configured, the uploadIdMarker parameter is invalid. If the keyMarker parameter is configured, the query result includes: • All objects whose names come after the value of keyMarker. • All multipart upload tasks in which the object names come after the keyMarker value and the upload IDs are greater than the uploadIdMarker value.	ListMultipartUploadsRequest.setUploadIdMarker(String uploadIdMarker)

- Simple list

  The following code provides an example for simple list:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List multipart upload tasks. By default, a maximum of 1,000 parts can be listed.
ListMultipartUploadsRequest listMultipartUploadsRequest = new ListMultipartUploadsRequest
(bucketName);
MultipartUploadListing multipartUploadListing = ossClient.listMultipartUploads(listMultip
artUploadsRequest);
for (MultipartUpload multipartUpload : multipartUploadListing.getMultipartUploads()) {
    // Query upload IDs.
    multipartUpload.getUploadId();
    // Query object names.
    multipartUpload.getKey();
    // Query the time the multipart upload tasks are initiated.
    multipartUpload.getInitiated();
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

If the value of the isTruncated field in the returned result is false, values of nextKeyMarker and nextUploadIdMarker are returned and used as the start point for the next object reading. If all multipart upload tasks cannot be returned at a time, list them by page.

- List all multipart upload tasks

  By default, listMultipartUploads can list up to 1,000 multipart upload tasks at a time. The following code provides an example on how to list more than 1,000 multipart upload tasks:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List multipart upload tasks.
MultipartUploadListing multipartUploadListing;
ListMultipartUploadsRequest listMultipartUploadsRequest = new ListMultipartUploadsRequest
(bucketName);
do {
    multipartUploadListing = ossClient.listMultipartUploads(listMultipartUploadsRequest);
    for (MultipartUpload multipartUpload : multipartUploadListing.getMultipartUploads())
{
        // Query upload IDs.
        multipartUpload.getUploadId();
        // Query object names.
        multipartUpload.getKey();
        // Query the time the multipart upload tasks are initiated.
        multipartUpload.getInitiated();
    }
    listMultipartUploadsRequest.setKeyMarker(multipartUploadListing.getNextKeyMarker());
    listMultipartUploadsRequest.setUploadIdMarker(multipartUploadListing.getNextUploadIdM
arker());
} while (multipartUploadListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List all multipart upload tasks by page

  The following code provides an example on how to list all multipart upload tasks by page:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List multipart upload tasks.
MultipartUploadListing multipartUploadListing;
ListMultipartUploadsRequest listMultipartUploadsRequest = new ListMultipartUploadsRequest
(bucketName);
// Specify the number of multipart upload tasks to list on each page.
listMultipartUploadsRequest.setMaxUploads(50);
do {
    multipartUploadListing = ossClient.listMultipartUploads(listMultipartUploadsRequest);
    for (MultipartUpload multipartUpload : multipartUploadListing.getMultipartUploads())
{
        // Query upload IDs.
        multipartUpload.getUploadId();
        // Query object names.
        multipartUpload.getKey();
        // Query the time the multipart upload tasks are initiated.
        multipartUpload.getInitiated();
    }
    listMultipartUploadsRequest.setKeyMarker(multipartUploadListing.getNextKeyMarker());
    listMultipartUploadsRequest.setUploadIdMarker(multipartUploadListing.getNextUploadIdM
arker());
} while (multipartUploadListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.6.7. Use a progress bar

Progress bars are used to indicate the progress of an upload or download.

The following code provides an example on how to use upload progress bars by using the ossClient.putObject method:

```
public class PutObjectProgressListener implements ProgressListener {
    private long bytesWritten = 0;
    private long totalBytes = -1;
    private boolean succeed = false;
    @Override
    public void progressChanged(ProgressEvent progressEvent) {
        long bytes = progressEvent.getBytes();
        ProgressEventType eventType = progressEvent.getEventType();
        switch (eventType) {
        case TRANSFER_STARTED_EVENT:
            System.out.println("Start to upload......");
            break;
        case REQUEST_CONTENT_LENGTH_EVENT:
            this.totalBytes = bytes;
```

```
            System.out.println(this.totalBytes + " bytes in total will be uploaded to OSS")
;
            break;
        case REQUEST_BYTE_TRANSFER_EVENT:
            this.bytesWritten += bytes;
            if (this.totalBytes ! = -1) {
                int percent = (int)(this.bytesWritten * 100.0 / this.totalBytes);
                System.out.println(bytes + " bytes have been written at this time, upload p
rogress: " + percent + "%(" + this.bytesWritten + "/" + this.totalBytes + ")");
            } else {
                System.out.println(bytes + " bytes have been written at this time, upload r
atio: unknown" + "(" + this.bytesWritten + "/...)");
            }
            break;
        case TRANSFER_COMPLETED_EVENT:
            this.succeed = true;
            System.out.println("Succeed to upload, " + this.bytesWritten + " bytes have bee
n transferred in total");
            break;
        case TRANSFER_FAILED_EVENT:
            System.out.println("Failed to upload, " + this.bytesWritten + " bytes have been
transferred");
            break;
        default:
            break;
        }
    }
    public boolean isSucceed() {
        return succeed;
    }
    public static void main(String[] args) {
        // The endpoint of the China (Hangzhou) region is used in this example. Specify the
actual endpoint.
        String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
        // Security risks may arise if you use the AccessKey pair of an Alibaba Cloud accou
nt to log on to OSS because the account has permissions on all API operations. We recommend
that you use a RAM user to call API operations or perform routine operations and maintenanc
e. To create a RAM user, log on to https://ram.console.aliyun.com.
        String accessKeyId = "<yourAccessKeyId>";
        String accessKeySecret = "<yourAccessKeySecret>";
        String bucketName = "<yourBucketName>";
        String objectName = "<yourObjectName>";
        // Create an OSSClient instance.
        OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret
);
        try {
            // View the upload progress information while you upload an object.
            ossClient.putObject(new PutObjectRequest(bucketName, objectName, new File("<you
rLocalFile>")).
                    <PutObjectRequest>withProgressListener(new PutObjectProgressListener())
);
        } catch (Exception e) {
            e.printStackTrace();
        }
```

```
        // Shut down the OSSClient instance.
        ossClient.shutdown();
    }
}
```

You can view progress information when you use ossClient.putObject, ossClient.getObject, or ossClient.uploadPart. However, you cannot view progress information when you use ossClient.uploadFile or ossClient.downloadFile.

6.1.2.1.6.8. Upload callback

This topic describes how to use upload callback.

The following code provides an example on how to use upload callback:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Specify the IP address of the server to which you want send the callback request. Example: http://oss-demo.aliyuncs.com:23450 or http://127.0.0.1:9090.
String callbackUrl = "<yourCallbackServerUrl>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
String content = "Hello OSS";
PutObjectRequest putObjectRequest = new PutObjectRequest(bucketName, objectName,new ByteArrayInputStream(content.getBytes()));
// Configure upload callback parameters.
Callback callback = new Callback();
callback.setCallbackUrl(callbackUrl);
// Optional. Configure the value of the host field included in the callback request header. This value is the same as the value of the host field specified for your server.
// callback.setCallbackHost("yourCallbackHost");
// Configure the value of the body field included in the callback request.
callback.setCallbackBody("{\\\"mimeType\\\":${mimeType},\\\"size\\\":${size}}");
// Configure Content-Type for the callback request.
callback.setCalbackBodyType(CalbackBodyType.JSON);
// Configure custom parameters for the callback request. Each custom parameter consists of a key and a value. The key must start with x:.
callback.addCallbackVar("x:var1", "value1");
callback.addCallbackVar("x:var2", "value2");
putObjectRequest.setCallback(callback);
PutObjectResult putObjectResult = ossClient.putObject(putObjectRequest);
// Read the response for the upload callback request.
byte[] buffer = new byte[1024];
putObjectResult.getResponse().getContent().read(buffer);
// You must close the stream after the object is read. Otherwise, connection leaks may occur. Consequently, no connections are available and an exception occurs.
putObjectResult.getResponse().getContent().close();
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.7. Download objects

6.1.2.1.7.1. Overview

OSS provides a variety of methods for you to download objects from OSS.

OSS SDK for Java provides the following object download methods:

- Streaming download
- Download to local files
- Range download

- Resumable download
- Conditional download

You can view the download progress by using a progress bar. For more information, see Use a progress bar.

6.1.2.1.7.2. Streaming download

If you have a large object to download or it is time-consuming to download the entire object at a time, you can use streaming download. Streaming download enables you to download part of the object content each time until you download the entire object.

If you do not close the ossObject object after it is used, connection leaks may occur. As a result, no connection is available and an exception occurs. The following code provides an example on how to close an ossObject object:

```
OSSObject ossObject = ossClient.getObject(bucketName, objectName);
ossObject.close();
```

The following code provides an example on how to download an object by using streaming download:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to download from OSS
. The path must include the file extension of the object. For example, set <yourObjectName>
to abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// ossObject includes the bucket name, object name, object metadata, and an input stream.
OSSObject ossObject = ossClient.getObject(bucketName, objectName);
// Read the object content.
System.out.println("Object content:");
BufferedReader reader = new BufferedReader(new InputStreamReader(ossObject.getObjectContent
()));
while (true) {
    String line = reader.readLine();
    if (line == null) break;
    System.out.println("\n" + line);
}
// You must close the stream that is obtained by using ossClient.getObject after the object
is read. Otherwise, connection leaks may occur. As a result, no connections are available a
nd an exception occurs.
reader.close();
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.7.3. Download to local files

This topic describes how to download an object to a local file.

The following code provides an example on how to download a specified object to a local file:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Download the object to a local file. If the name of the object is the same as that of the local file, the object replaces the local file. If the name of the object is different from that of the local file, the object is downloaded.
ossClient.getObject(new GetObjectRequest(bucketName, objectName), new File("<yourLocalFile>"));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.7.4. Range download

If you need only part of the data in an object, you can use range download to download data within the specified range.

Specify a valid range

The following code provides an example on how to specify a valid range to download an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to download from OSS. The path must include the file extension of the object. Example: abc/efg/123.jpg.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
GetObjectRequest getObjectRequest = new GetObjectRequest(bucketName, objectName);
// The valid range for an object whose size is 1,000 bytes is from byte 0 to byte 999.
// Query the data that is within the range from byte 0 to byte 999, which includes a total of 1,000 bytes. If the specified range is invalid, for example, the specified range includes a negative number, or the specified value is larger than the object size, the entire object is downloaded.
getObjectRequest.setRange(0, 999);
// Start range download.
OSSObject ossObject = ossClient.getObject(getObjectRequest);
// Read the data.
byte[] buf = new byte[1024];
InputStream in = ossObject.getObjectContent();
for (int n = 0; n ! = -1; ) {
    n = in.read(buf, 0, buf.length);
}
// You must close the stream that is obtained by using ossClient.getObject after the object is read. Otherwise, connection leaks may occur. As a result, no connections are available and an exception occurs.
in.close();
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Streaming download may not read all data at a time. To read 64 KB of data from OSS in streaming mode, you can use the following method to read the data multiple times until 64 KB of data or the entire object is read. For more information, see InputStream.read.

```
byte[] buf = new byte[1024];
InputStream in = ossObject.getObjectContent();
for (int n = 0; n ! = -1; ) {
    n = in.read(buf, 0, buf.length);
}
in.close();
```

Specify an invalid range

The valid range for an object whose size is 1,000 bytes is from byte 0 to byte 999. If the specified range is not within the range, the range does not take effect. Then, OSS returns the 200 HTTP status code and the data of the entire object. The following list provides examples of invalid requests and the returned results:

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.

- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.

Compatible download

If you add x-oss-range-behavior:standard to the request header, the download behavior is modified when the specified range is not within the valid range. Example: Use range download to download an object whose size is 1,000 bytes.

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns the 206 HTTP status code and the data that is within the range from byte 500 to byte 999.
- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns the 416 HTTP status code and the error code InvalidRange.

The following code provides an example on how to perform compatible download:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Specify an object whose size is 1,000 bytes.
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Specify the compatible behavior.
// When the value at the end of the range is invalid, OSS returns the data that is within t
he range from byte 500 to byte 999. The 206 HTTP status code is also returned.
getObjectRequest = new GetObjectRequest(bucketName, objectName);
getObjectRequest.setRange(500, 2000);
getObjectRequest.addHeader("x-oss-range-behavior", "standard");
OSSObject ossObject = ossClient.getObject(getObjectRequest);
ossObject.close();
System.out.println("standard get " + "500~2000 "+ "statusCode:"  + ossObject.getResponse().
getStatusCode());
System.out.println("standard get " + "500~2000 " + "contentLength:" + ossObject.getResponse
().getContentLength());
try {
    // When the value at the start of the range is invalid, exceptions are returned for the
following code. The returned HTTP status code is 416 and the returned error code is Invalid
Range.
    getObjectRequest = new GetObjectRequest(bucketName, objectName);
    getObjectRequest.setRange(1000, 2000);
    getObjectRequest.addHeader("x-oss-range-behavior", "standard");
    ossClient.getObject(getObjectRequest);
} catch (OSSException e) {
    System.out.println("standard get " + "1000~2000:" + "error code:" + e.getErrorCode());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.7.5. Resumable download

You may fail to download a large object if the network is unstable or if the program stops responding. In some cases, you may still fail to download the object even after multiple attempts. To solve this problem, OSS SDK for Java provides the resumable download feature.

To enable resumable download, you need to split the object you want to download into multiple parts and download them separately. After all parts are downloaded, these parts are combined into a complete object.

You can use ossClient.downloadFile to enable resumable download. The following table describes the parameters you can configure for DownloadFileRequest.

Parameter	Description	Required	Default value	Configuration method
bucket	The name of the bucket.	Yes	None	Constructor
key	The name of the object.	Yes	None	Constructor
downloadFile	The path to the local file. The OSS object is downloaded to this file.	No	Name of the object	Constructor or setUploadFile
partSize	The size of each part. Valid values: 1 byte to 5 GB.	No	Object size/10000	setPartSize
taskNum	The number of parts you need to download simultaneously.	No	1	setTaskNum
enableCheckpoint	Specifies whether to enable resumable upload.	No	false	setEnableCheckpoint

Parameter	Description	Required	Default value	Configuration method
checkpointFile	The file that records the results of multipart download. This parameter must be configured to enable resumable upload. This file stores information about download progress. If you fail to download a part, the next download continues based on the recorded progress. After the object is downloaded, the checkpoint file is deleted.	No	downloadFile.ucp (share the same directory with DownloadFile)	setCheckpointFile

The following code provides an example on how to perform resumable download:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Send a request to download 10 tasks simultaneously and start resumable download.
DownloadFileRequest downloadFileRequest = new DownloadFileRequest(bucketName, objectName);
downloadFileRequest.setDownloadFile("<yourDownloadFile>");
downloadFileRequest.setPartSize(1 * 1024 * 1024);
downloadFileRequest.setTaskNum(10);
downloadFileRequest.setEnableCheckpoint(true);
downloadFileRequest.setCheckpointFile("<yourCheckpointFile>");
// Download the object.
DownloadFileResult downloadRes = ossClient.downloadFile(downloadFileRequest);
// After the object is downloaded, the object metadata is returned.
downloadRes.getObjectMetadata();
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.7.6. Conditional download

This topic describes how to download objects that meet the specified conditions.

OSS allows you to configure one or more conditions for object downloads. If the specified conditions are met, the object can be downloaded. If the specified conditions are not met, an error code is returned and the object cannot be downloaded. The following table describes the download conditions.

Parameter	Description
If-Modified-Since	If the specified time is earlier than the time the object is modified, the object can be downloaded. Otherwise, 304 Not modified is returned.
If-Unmodified-Since	If the specified time is later than or equal to the time the object is modified, the object can be downloaded. Otherwise, 412 Precondition failed is returned.
If-Match	If the specified ETag matches that of an object, the object can be downloaded. Otherwise, 412 Precondition failed is returned.
If-None-Match	If the specified ETag does not match that of an object, the object can be downloaded. Otherwise, 304 Not modified is returned.

You can use If-Modified-Since and If-Unmodified-Since as object download conditions at the same time. You can also configure both If-Match and If-None-Match for object downloads.

You can obtain the ETag by using ossClient.getObjectMeta.

The following code provides an example on how to perform conditional download:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
GetObjectRequest request = new GetObjectRequest(bucketName, objectName);
// Configure the download conditions.
request.setModifiedSinceConstraint(new Date());
// Download the object to a local file.
ossClient.getObject(request, new File("<yourLocalFile>"));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Conditional download supports ossClient.getObject and ossClient.downloadFile.

6.1.2.1.7.7. Use a progress bar

Progress bars are used to indicate the progress of an upload or download.

For the complete code of download progress bars, visit GitHub.

The following code provides an example on how to use upload progress bars in ossClient.getObject:

```
static class GetObjectProgressListener implements ProgressListener {
        private long bytesRead = 0;
        private long totalBytes = -1;
        private boolean succeed = false;
        @Override
        public void progressChanged(ProgressEvent progressEvent) {
            long bytes = progressEvent.getBytes();
            ProgressEventType eventType = progressEvent.getEventType();
            switch (eventType) {
            case TRANSFER_STARTED_EVENT:
                System.out.println("Start to download......");
                break;
            case RESPONSE_CONTENT_LENGTH_EVENT:
                this.totalBytes = bytes;
                System.out.println(this.totalBytes + " bytes in total will be downloaded to
a local file");
                break;
            case RESPONSE_BYTE_TRANSFER_EVENT:
                this.bytesRead += bytes;
                if (this.totalBytes ! = -1) {
                    int percent = (int)(this.bytesRead * 100.0 / this.totalBytes);
                    System.out.println(bytes + " bytes have been read at this time, downloa
d progress: " +
                            percent + "%(" + this.bytesRead + "/" + this.totalBytes + ")");
                } else {
                    System.out.println(bytes + " bytes have been read at this time, downloa
d ratio: unknown" +
                            "(" + this.bytesRead + "/...)");
                }
                break;
            case TRANSFER_COMPLETED_EVENT:
                this.succeed = true;
                System.out.println("Succeed to download, " + this.bytesRead + " bytes have
been transferred in total");
                break;
            case TRANSFER_FAILED_EVENT:
                System.out.println("Failed to download, " + this.bytesRead + " bytes have b
een transferred");
                break;
            default:
                break;
            }
        }
        public boolean isSucceed() {
            return succeed;
        }
```

```
    }
public static void main(String[] args) {
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
    String accessKeyId = "<yourAccessKeyId>";
    String accessKeySecret = "<yourAccessKeySecret>";
    String bucketName = "<yourBucketName>";
    String objectName = "<yourObjectName>";
    OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
    try {
            // View the download progress while you download an object.
            ossClient.getObject(new GetObjectRequest(bucketName, objectName).
                    <GetObjectRequest>withProgressListener(new GetObjectProgressListener())
,
                    new File("<yourLocalFile>"));
    } catch (Exception e) {
        e.printStackTrace();
    }
    // Shut down the OSSClient instance.
    ossClient.shutdown();
}
```

You can view progress information when you use ossClient.putObject, ossClient.getObject, or ossClient.uploadPart. However, you cannot view progress information when you use ossClient.uploadFile or ossClient.downloadFile.

6.1.2.1.8. Manage objects

6.1.2.1.8.1. Overview

You can manage objects in a bucket by using a series of API operations such as SetObjectAcl, GetObjectAcl, ListObjects, DeleteObject, CopyObject, and DoesObjectExist.

By using the preceding operations, you can perform the following operations:

- Determine whether an object exists
- Manage object ACLs
- Manage object metadata
- List objects
- Query objects
- Delete objects
- Copy objects

6.1.2.1.8.2. Determine whether an object exists

This topic describes how to determine whether an object exists.

The following code provides an example on how to determine whether an object exists:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Determine whether the object exists. doesObjectExist includes the isOnlyInOSS parameter.
If the value of isOnlyInOSS is true, OSS does not perform redirection back-to-origin or mirroring back-to-origin when the object does not exist.
If the value of isOnlyInOSS is false, OSS performs redirection back-to-origin or mirroring back-to-origin when the object does not exist.
boolean found = ossClient.doesObjectExist("<yourBucketName>", "<yourObjectName>");
System.out.println(found);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.8.3. Manage object ACLs

This topic describes how to manage the access control list (ACL) of an object.

The following table describes the ACLs that can be configured for objects.

ACL	Description	Value
Inherited from bucket	The ACL of an object is the same as that of the bucket in which the object is stored.	CannedAccessControlList.Default
Private	Only the owner or authorized users of the bucket can read and write the object.	CannedAccessControlList.Private
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	CannedAccessControlList.PublicRead
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	CannedAccessControlList.PublicReadWrite

The ACL of an object takes precedence over the ACL of the bucket in which the object is stored. For example, the ACL of a bucket is private, while the ACL of the object that is stored in this bucket is public. All users can read and write the object. If an object does not have a configured ACL, the object will inherit the ACL of the bucket in which the object is stored.

Configure ACL for an object

The following code provides an example on how to configure ACL for an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Configure the ACL of the specified object to public read.
ossClient.setObjectAcl("<yourBucketName>", "<yourObjectName>", CannedAccessControlList.PublicRead);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Query the ACL of an object

The following code provides an example on how to query the ACL of a specified object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Query the ACL of an object.
ObjectAcl objectAcl = ossClient.getObjectAcl("<yourBucketName>", "<yourObjectName>");
System.out.println(objectAcl.getPermission().toString());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.8.4. Manage object metadata

Object metadata contains HTTP headers and user metadata.

Configure object metadata

- Configure HTTP headers

  The following code provides an example on how to configure HTTP headers:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String content = "Hello OSS";
// Create object metadata. You can configure HTTP headers by using object metadata.
ObjectMetadata meta = new ObjectMetadata();
String md5 = BinaryUtil.toBase64String(BinaryUtil.calculateMd5(content.getBytes()));
// Enable MD5 verification. After MD5 verification is enabled, OSS calculates the actual
MD5 hash and compares this MD5 hash wih that provided in the request. If the two values a
re different, an error occurs.
meta.setContentMD5(md5);
// Specify the type of content you want to upload. The browser determines the format and
encoding type used to read the object based on the content type of the object. If the con
tent type is not specified, a content type is generated based on the object name extensio
n. If no extension is available, default value application/octet-stream is used as the co
ntent type.
meta.setContentType("text/plain");
// Specify the name for the object when the content is downloaded.
meta.setContentDisposition("attachment; filename=\"DownloadFilename\"");
// Specify the length of the object content to upload. If the actual object length is gre
ater than the specified length, the object is uploaded based on the specified length. If
the object is smaller than the specified length, the object is uploaded based on the actu
al length.
meta.setContentLength(content.length());
// Specify the caching behavior of the website when the content is downloaded.
meta.setCacheControl("Download Action");
// Specify the expiration time of the cache in the GMT.
meta.setExpirationTime(DateUtil.parseIso8601Date("2022-10-12T00:00:00.000Z"));
// Specify the content encoding format when the content is downloaded.
meta.setContentEncoding("utf-8");
// Configure the header.
meta.setHeader("<yourHeader>", "<yourHeaderValue>");
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Upload the object.
ossClient.putObject("<yourBucketName>", "<yourObjectName>", new ByteArrayInputStream(cont
ent.getBytes()), meta);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For more information about HTTP headers, visit RFC 2616.

- Configure user metadata

  You can configure the user metadata of an object to describe the object.

  The following code provides an example on how to configure the user metadata of an object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Security risks may arise if you use the AccessKey pair of an Alibaba Cloud account to
log on to OSS because the account has permissions on all API operations. We recommend tha
t you use a RAM user to call API operations or perform routine operations and maintenance
. To create a RAM user, log on to https://ram.console.aliyun.com.
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String content = "Hello OSS";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Create object metadata.
ObjectMetadata meta = new ObjectMetadata();
// Set the value of the property parameter for the user metadata to property-value. We re
commend that you use the Base64 encoding method.
meta.addUserMetadata("property", "property-value");
// Upload the object.
ossClient.putObject("<yourBucketName>", "<yourObjectName>", new ByteArrayInputStream(cont
ent.getBytes()), meta);
// Query the object metadata.
ossClient.getObjectMetadata("<yourBucketName>", "<yourObjectName>");
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Object metadata is downloaded with the object. An object may contain multiple pieces of object metadata. The total size of the object metadata cannot exceed 8 KB.

Modify object metadata

The following code provides an example on how to modify object metadata:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String sourceBucketName = "<yourSourceBucketName>";
String sourceObjectName = "<yourSourceObjectName>";
String destinationBucketName = "<yourDestinationBucketName>";
String destinationObjectName = "<yourDestinationObjectName>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId,accessKeySecret);
// Replace the source object with the target object. Call ossClient.copyObject to modify object metadata.
CopyObjectRequest request = new CopyObjectRequest(sourceBucketName, sourceObjectName, destinationBucketName, destinationObjectName);
ObjectMetadata meta = new ObjectMetadata();
// Specify the type of content you want to upload. The browser determines the format and encoding type used to read the object based on the content type of the object. If the content type is not specified, a content type is generated based on the object name extension. If no extension is available, the default value application/octet-stream is used as the content type.
meta.setContentType("text/plain");
// Specify the name for the object when the content is downloaded.
meta.setContentDisposition("Download File Name");
// Specify the caching behavior of the website when the content is downloaded.
meta.setCacheControl("Download Action");
// Specify the expiration time of the cache in the GMT.
meta.setExpirationTime(DateUtil.parseIso8601Date("2022-10-12T00:00:00.000Z"));
// Specify the content encoding format when the content is downloaded.
meta.setContentEncoding("utf-8");
// Configure the header.
meta.setHeader("<yourHeader>", "<yourHeaderValue>");
// Set the value of the property parameter for the user metadata to property-value.
meta.addUserMetadata("property", "property-value");
request.setNewObjectMetadata(meta);
// Modified the object metadata.
ossClient.copyObject(request);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Query object metadata

The following table lists the methods you can use to query object metadata.

Configuration method	Description	Benefits
ossClient.getSimplifiedObjectMeta	Queries part of object metadata such as the ETag, Size, and LastModified (the last modified time) values of the object.	More lightweight and faster
ossClient.getObjectMetadata	Queries all object metadata	None

The following code provides an example on how to query the object metadata:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
// Create an OSSClient instance.
OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
// Query parts of the object metadata.
SimplifiedObjectMeta objectMeta = ossClient.getSimplifiedObjectMeta("<yourBucketName>", "<yourObjectName>");
System.out.println(objectMeta.getSize());
System.out.println(objectMeta.getETag());
System.out.println(objectMeta.getLastModified());
// Query all object metadata.
ObjectMetadata metadata = ossClient.getObjectMetadata("<yourBucketName>", "<yourObjectName>");
System.out.println(metadata.getContentType());
System.out.println(metadata.getLastModified());
System.out.println(metadata.getExpirationTime());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.8.5. List objects

Objects in a bucket are sorted alphabetically. You can use ossClient.listObjects to list objects in a bucket.

listObjects supports the following types of parameter formats:

- ObjectListing listObjects(String bucketName): lists objects in a bucket. A maximum of 100 objects can be listed.
- ObjectListing listObjects(String bucketName, String prefix): lists objects whose names contain a specified prefix in a bucket. A maximum of 100 objects can be listed.
- ObjectListing listObjects(ListObjectsRequest listObjectsRequest): provides multiple filtering features to implement flexible queries.

The following table describes parameters you can configure for ObjectListing.

Parameter	Description	Configuration method
objectSummaries	Specifies the object metadata you want to return.	List<OSSObjectSummary> getObjectSummaries()
prefix	Specifies the prefix that the returned object names must contain.	String getPrefix()
delimiter	Specifies the character used to group objects by name.	String getDelimiter()

Parameter	Description	Configuration method
marker	Specifies the name of the object after which the list begins.	String getMarker()
maxKeys	Specifies the maximum number of objects that can be listed each time.	int getMaxKeys()
nextMarker	Specifies the name of the object after which the next list begins.	String getNextMarker()
isTruncated	Indicates whether the objects list is truncated. • If all objects are listed, the returned value of this parameter is false. • If only part of objects are listed, the returned value of this parameter is true.	boolean isTruncated()
commonPrefixes	Specifies a set of substrings of object names. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in commonPrefixes.	List<String> getCommonPrefixes()
encodingType	Specifies the encoding type of the object names in the response.	String getEncodingType()

Simple list

The following code provides an example on how to list objects in a specified bucket. By default, a maximum of 100 objects can be listed.

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String KeyPrefix = "<yourKeyPrefix>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List objects. If you do not set KeyPrifex, all objects in the bucket are listed. If you set KeyPrifex, objects whose names contain the specified prefix in the bucket are listed.
ObjectListing objectListing = ossClient.listObjects(bucketName, KeyPrefix);
List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
for (OSSObjectSummary s : sums) {
    System.out.println("\t" + s.getKey());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List objects by using ListObjectsRequest

You can configure parameters of ListObjectsRequest to implement flexible queries. The following table describes the parameters you can configure for ListObjectsRequest.

Parameter	Description	Configuration method
prefix	Specifies the prefix that returned object names must contain.	setPrefix(String prefix)
delimiter	Specifies the character used to group objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in commonPrefixes.	setDelimiter(String delimiter)
marker	Specifies the name of the object after which the list begins.	setMarker(String marker)
maxKeys	Specifies the maximum number of objects that can be listed each time. The default value is 100. The maximum value is 1000.	setMaxKeys(Integer maxKeys)
encodingType	Specifies the encoding type of the object names in the response. Only URL encoding is supported.	setEncodingType(String encodingType)

- List a specified number of objects

  The following code provides an example on how to list a specified number of objects:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Specifies the maximum number of objects that can be listed each time.
final int maxKeys = 200;
// List objects.
ObjectListing objectListing = ossClient.listObjects(new ListObjectsRequest(bucketName).wi
thMaxKeys(maxKeys));
List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
for (OSSObjectSummary s : sums) {
    System.out.println("\t" + s.getKey());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List objects whose names contain a specified prefix

  The following code provides an example on how to list objects whose names contain a specified prefix:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Specify a prefix.
final String keyPrefix = "<yourkeyPrefix>";
// List the objects whose names contain the specified prefix. By default, a maximum of 10
0 objects can be listed.
ObjectListing objectListing = ossClient.listObjects(new ListObjectsRequest(bucketName).wi
thPrefix(keyPrefix));
List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
for (OSSObjectSummary s : sums) {
    System.out.println("\t" + s.getKey());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List objects whose names come after a specified marker

  The marker parameter specifies the name of the object after which the list begins. The following code provides an example on how to list objects whose names come after a specified marker:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
final String marker = "<yourMarker>";
// List the objects whose names come after the specified marker. By default, a maximum of
100 objects can be listed.
ObjectListing objectListing = ossClient.listObjects(new ListObjectsRequest(bucketName).wi
thMarker(marker));
List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
for (OSSObjectSummary s : sums) {
    System.out.println("\t" + s.getKey());
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List all objects by page

  The following code provides an example on how to list all objects in a specified bucket by page. The maximum number of objects that can be listed on each page is specified by maxKeys.

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
final int maxKeys = 200;
String nextMarker = null;
ObjectListing objectListing;
do {
    objectListing = ossClient.listObjects(new ListObjectsRequest(bucketName).withMarker(n
extMarker).withMaxKeys(maxKeys));
    List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
    for (OSSObjectSummary s : sums) {
        System.out.println("\t" + s.getKey());
    }
    nextMarker = objectListing.getNextMarker();
} while (objectListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List objects whose names contain a specified prefix by page

  The following code provides an example on how to list objects whose names contain a specified prefix by page:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Specify that the maximum number of objects that can be listed on each page is 200.
final int maxKeys = 200;
final String keyPrefix = "<yourkeyPrefix>";
String nextMarker = "<yourNextMarker>";
ObjectListing objectListing;
do {
    objectListing = ossClient.listObjects(new ListObjectsRequest(bucketName).
            withPrefix(keyPrefix).withMarker(nextMarker).withMaxKeys(maxKeys));
    List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
    for (OSSObjectSummary s : sums) {
        System.out.println("\t" + s.getKey());
    }
    nextMarker = objectListing.getNextMarker();
} while (objectListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- List objects and specify the encoding type of the object names in the response

  An object name that contains any of the following special characters needs to be encoded before it is transmitted. Only URL encoding is supported.

  - Single quotation mark (')
  - Double quotation mark (")
  - Ampersands (&)
  - Angle brackets (<>)
  - Pause marker (、)
  - Chinese characters

  The following code provides an example on how to list objects and specify the encoding type of the object names in the response:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
final int maxKeys = 200;
final String keyPrefix = "<yourkeyPrefix>";
String nextMarker = "<yourNextMarker>";
ObjectListing objectListing;
do {
    ListObjectsRequest listObjectsRequest = new ListObjectsRequest(bucketName);
    listObjectsRequest.setPrefix(keyPrefix);
    listObjectsRequest.setMaxKeys(maxKeys);
    listObjectsRequest.setMarker(nextMarker);
    // Specify the encoding type of the object names in the response.
    listObjectsRequest.setEncodingType("url");
    objectListing = ossClient.listObjects(listObjectsRequest);
    // Decode the object names.
    for (OSSObjectSummary objectSummary: objectListing.getObjectSummaries()) {
        System.out.println("Key:" + URLDecoder.decode(objectSummary.getKey(), "UTF-8"));
    }
    // Decode the value of commonPrefixes.
    for (String commonPrefixes: objectListing.getCommonPrefixes()) {
        System.out.println("CommonPrefixes:" + URLDecoder.decode(commonPrefixes, "UTF-8")
);
    }
    // Decode the value of nextMarker.
    if (objectListing.getNextMarker() ! = null) {
        nextMarker = URLDecoder.decode(objectListing.getNextMarker(), "UTF-8");
    }
} while (objectListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

List objects by folder

OSS does not use a hierarchical structure for objects, but instead uses a flat structure. All elements are stored as objects in buckets. A folder is an object whose size is 0 and whose name ends with a forward slash. You can upload and download this object. By default, the OSS console displays objects whose names end with a forward slash (/) as a folder.

You can use the delimiter and prefix parameters to list objects by folder.

- If prefix is set to the name of a folder, objects and subfolders whose names contain the prefix are listed.
- If you also set delimiter to a forward slash (/) in the request, the objects and subfolders whose names start with the specified prefix in the folder are listed. Each subfolder is listed as a single result element in commonPrefixes. The objects and folders in these subfolders are not listed.

For the complete code used to create a folder, visit GitHub.

Example: A bucket contains the following objects: oss.jpg, fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. The forward slash (/) is used as the folder delimiter. The following examples show you how to list objects by folder in a bucket.

- List all objects in a bucket

  The following code provides an example on how to list all objects in a bucket:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create ListObjectsRequest.
ListObjectsRequest listObjectsRequest = new ListObjectsRequest(bucketName);
// List all objects in the bucket.
ObjectListing listing = ossClient.listObjects(listObjectsRequest);
// Traverse all the objects to display them.
System.out.println("Objects:");
for (OSSObjectSummary objectSummary : listing.getObjectSummaries()) {
    System.out.println(objectSummary.getKey());
}
// Traverse all the commonPrefix elements to display them.
System.out.println("CommonPrefixes:");
for (String commonPrefix : listing.getCommonPrefixes()) {
    System.out.println(commonPrefix);
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

  Example output:

```
Objects:
fun/movie/001.avi
fun/movie/007.avi
fun/test.jpg
oss.jpg
CommonPrefixes:
```

- List all objects in a specified folder

  The following code provides an example on how to list all objects whose names contain a specified prefix:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create ListObjectsRequest.
ListObjectsRequest listObjectsRequest = new ListObjectsRequest(bucketName);
// Set prefix to fun/ to list all objects in the fun/ folder.
listObjectsRequest.setPrefix("fun/");
// Lists all objects in the fun/ folder.
ObjectListing listing = ossClient.listObjects(listObjectsRequest);
// Traverse the listed objects to display them.
System.out.println("Objects:");
for (OSSObjectSummary objectSummary : listing.getObjectSummaries()) {
    System.out.println(objectSummary.getKey());
}
// Traverse the listed commonPrefix elements to display them.
System.out.println("\nCommonPrefixes:");
for (String commonPrefix : listing.getCommonPrefixes()) {
    System.out.println(commonPrefix);
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Example output:

```
Objects:
fun/movie/001.avi
fun/movie/007.avi
fun/test.jpg
CommonPrefixes:
```

- List the objects and subfolders in a folder

  The following code provides an example on how to list the objects and subfolders in a specified directory:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create ListObjectsRequest.
ListObjectsRequest listObjectsRequest = new ListObjectsRequest(bucketName);
// Set the delimiter to a forward slash (/).
listObjectsRequest.setDelimiter("/");
// List all objects and subfolders in the fun folder.
listObjectsRequest.setPrefix("fun/");
ObjectListing listing = ossClient.listObjects(listObjectsRequest);
// Traverse all objects to display them.
System.out.println("Objects:");
// In the response, objectSummaries lists the objects in the fun folder.
for (OSSObjectSummary objectSummary : listing.getObjectSummaries()) {
    System.out.println(objectSummary.getKey());
}
// Traverse all commonPrefix elements to display them.
System.out.println("\nCommonPrefixes:");
// commonPrefixs lists the subfolders in the fun folder. The fun/movie/001.avi and fun/mo
vie/007.avi objects are not listed because they are in the movie subfolder of the fun fol
der.
for (String commonPrefix : listing.getCommonPrefixes()) {
    System.out.println(commonPrefix);
}
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Example output:

```
Objects:
fun/test.jpg
CommonPrefixes:
fun/movie/
```

- Query the sizes of objects in a specified folder

  The following code provides an example on how to query the sizes of objects in a specified folder:

```
// Query the total size of objects in the specified folder.
    private static long calculateFolderLength(OSS ossClient, String bucketName, String fo
lder) {
        long size = 0L;
        ObjectListing objectListing = null;
        do {
              // The default value of MaxKeys is 100. The maximum value of MaxKeys is 100
0.
            ListObjectsRequest request = new ListObjectsRequest(bucketName).withPrefix(fo
lder).withMaxKeys(1000);
```

```
            if (objectListing ! = null) {
                request.setMarker(objectListing.getNextMarker());
            }
            objectListing = ossClient.listObjects(request);
            List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
            for (OSSObjectSummary s : sums) {
                size += s.getSize();
            }
        } while (objectListing.isTruncated());
        return size;
    }
    public void Calculate() {
        // The endpoint of the China (Hangzhou) region is used in this example. Specify t
he actual endpoint.
        String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
        String accessKeyId = "<yourAccessKeyId>";
        String accessKeySecret = "<yourAccessKeySecret>";
        String bucketName = "<yourBucketName>";
        // Create an OSSClient instance.
        OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecr
et);
        // Specify the prefix. If you want to traverse the sizes of objects in the root f
older, leave this parameter empty.
        final String keyPrefix = "<YourPrefix>";
        ObjectListing objectListing = null;
        do {
            // By default, a maximum of 100 objects can be listed each time.
            ListObjectsRequest request = new ListObjectsRequest(bucketName).withDelimiter
("/").withPrefix(keyPrefix);
            if (objectListing ! = null) {
                request.setMarker(objectListing.getNextMarker());
            }
            objectListing = ossClient.listObjects(request);
            List<String> folders = objectListing.getCommonPrefixes();
            for (String folder : folders) {
                System.out.println(folder + " : " + (calculateFolderLength(ossClient, buc
ketName, folder) / 1024) + "KB");
            }
            List<OSSObjectSummary> sums = objectListing.getObjectSummaries();
            for (OSSObjectSummary s : sums) {
                System.out.println(s.getKey() + " : " + (s.getSize() / 1024) + "KB");
            }
        } while (objectListing.isTruncated());
        ossClient.shutdown();
    }
```

6.1.2.1.8.6. Query objects

This topic describes how to call SelectObject to query CSV and JSON objects by using OSS SDK for Java.

The following code provides an example on how to query CSV and JSON objects:

```
package samples;
import com.aliyun.oss.model.*;
```

```
import com.aliyun.oss.OSS;
import com.aliyun.oss.OSSClientBuilder;
import java.io.BufferedReader;
import java.io.ByteArrayInputStream;
import java.io.InputStreamReader;
/**
 * Examples of create select object metadata and select object.
 *
 */
public class SelectObjectSample {
    private static String endpoint = "<endpoint, http://oss-cn-hangzhou.aliyuncs.com>";
    private static String accessKeyId = "<yourAccessKeyId>";
    private static String accessKeySecret = "<yourAccessKeySecret>";
    private static String bucketName = "<yourBucketName>";
    public static void main(String[] args) throws Exception {
        OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret
);
        selectCsvSample("test.csv", ossClient);
        selectJsonSample("test.json", ossClient);
        ossClient.shutdown();
    }
    private static void selectCsvSample(String key, OSS ossClient) throws Exception {
        String content = "name,school,company,age\r\n" +
                "Lora Francis,School A,Staples Inc,27\r\n" +
                "Eleanor Little,School B,\"Conectiv, Inc\",43\r\n" +
                "Rosie Hughes,School C,Western Gas Resources Inc,44\r\n" +
                "Lawrence Ross,School D,MetLife Inc.,24";
        ossClient.putObject(bucketName, key, new ByteArrayInputStream(content.getBytes()));
        SelectObjectMetadata selectObjectMetadata = ossClient.createSelectObjectMetadata(
                new CreateSelectObjectMetadataRequest(bucketName, key)
                        .withInputSerialization(
                                new InputSerialization().withCsvInputFormat(
                                        new CSVFormat().withHeaderInfo(CSVFormat.Header.Use
).withRecordDelimiter("\r\n"))));
        System.out.println(selectObjectMetadata.getCsvObjectMetadata().getTotalLines());
        System.out.println(selectObjectMetadata.getCsvObjectMetadata().getSplits());
        SelectObjectRequest selectObjectRequest =
                new SelectObjectRequest(bucketName, key)
                        .withInputSerialization(
                                new InputSerialization().withCsvInputFormat(
                                        new CSVFormat().withHeaderInfo(CSVFormat.Header.Use
).withRecordDelimiter("\r\n")))
                        .withOutputSerialization(new OutputSerialization().withCsvOutputFor
mat(new CSVFormat()));
        selectObjectRequest.setExpression("select * from ossobject where _4 > 40");
        OSSObject ossObject = ossClient.selectObject(selectObjectRequest);
        // read object content from ossObject
        BufferedReader reader = new BufferedReader(new InputStreamReader(ossObject.getObjec
tContent()));
        while (true) {
            String line = reader.readLine();
            if (line == null) {
                break;
            }
```

```
            System.out.println(line);
        }
        reader.close();
        ossClient.deleteObject(bucketName, key);
    }
    private static void selectJsonSample(String key, OSS ossClient) throws Exception {
        final String content = "{\n" +
                "\t\"name\": \"Lora Francis\",\n" +
                "\t\"age\": 27,\n" +
                "\t\"company\": \"Staples Inc\"\n" +
                "}\n" +
                "{\n" +
                "\t\"name\": \"Eleanor Little\",\n" +
                "\t\"age\": 43,\n" +
                "\t\"company\": \"Conectiv, Inc\"\n" +
                "}\n" +
                "{\n" +
                "\t\"name\": \"Rosie Hughes\",\n" +
                "\t\"age\": 44,\n" +
                "\t\"company\": \"Western Gas Resources Inc\"\n" +
                "}\n" +
                "{\n" +
                "\t\"name\": \"Lawrence Ross\",\n" +
                "\t\"age\": 24,\n" +
                "\t\"company\": \"MetLife Inc.\"\n" +
                "}";
        ossClient.putObject(bucketName, key, new ByteArrayInputStream(content.getBytes()));
        SelectObjectRequest selectObjectRequest =
                new SelectObjectRequest(bucketName, key)
                        .withInputSerialization(new InputSerialization()
                                .withCompressionType(CompressionType.NONE)
                                .withJsonInputFormat(new JsonFormat().withJsonType(JsonType
.LINES)))
                        .withOutputSerialization(new OutputSerialization()
                                .withCrcEnabled(true)
                                .withJsonOutputFormat(new JsonFormat()))
                        .withExpression("select * from ossobject as s where s.age > 40");
        OSSObject ossObject = ossClient.selectObject(selectObjectRequest);
        // read object content from ossObject
        BufferedReader reader = new BufferedReader(new InputStreamReader(ossObject.getObjec
tContent()));
        while (true) {
            String line = reader.readLine();
            if (line == null) {
                break;
            }
            System.out.println(line);
        }
        reader.close();
        ossClient.deleteObject(bucketName, key);
    }
}
```

6.1.2.1.8.7. Delete objects

This topic describes how to delete objects.

Warning Deleted objects cannot be recovered. Exercise caution when you delete objects.

Delete a single object

The following code provides an example on how to delete a single object:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Delete the object. To delete a folder, set ObjectName to the folder name. If the folder is not empty, you must delete all objects in the folder before you can delete the folder.
ossClient.deleteObject(bucketName, objectName);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Delete multiple objects

A maximum of 1,000 objects can be deleted each time. The deletion results can be returned in the following two modes:

- Verbose: returns a list of deleted objects. The default mode is Verbose.
- quiet: returns a list of objects you failed to delete.

The following table describes the parameters for DeleteObjectsRequest.

Parameter	Description	Configuration method
Keys	Specifies the objects you want to delete.	setKeys(List<String>)
quiet	Specifies the return mode. true indicates quiet. false indicates Verbose. Default value: false.	setQuiet(boolean)
encodingType	Specifies the encoding type of the object name in the response. Only URL encoding is supported.	setEncodingType(String)

The following table describes the parameters you can configure for DeleteObjectsResult.

Parameter	Description	Configuration method
deletedObjects	Indicates the results of the operation. The list of deleted objects is returned when the Verbose mode is used. The list of objects that fail to be deleted is returned when the quiet mode is used.	List<String> getDeletedObjects()
encodingType	Indicates the method for encoding the objects names listed in deletedObjects. When the parameter is empty, the object names are not encoded.	getEncodingType()

The following code provides an example on how to delete multiple objects at a time:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Delete the objects. key is equivalent to ObjectName, which indicates the complete path of the object you want to delete from OSS, and must include the extension of the object name. Example: abc/efg/123.jpg.
List<String> keys = new ArrayList<String>();
keys.add("key0");
keys.add("key1");
keys.add("key2");
DeleteObjectsResult deleteObjectsResult = ossClient.deleteObjects(new DeleteObjectsRequest(bucketName).withKeys(keys));
List<String> deletedObjects = deleteObjectsResult.getDeletedObjects();
// Shut down the OSSClient instance.
ossClient.shutdown();
```

For the complete code used to delete multiple objects, visit GitHub.

Delete objects whose names contain a specified prefix

The following code provides an example on how to delete objects whose names contain a specified prefix:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
// Specify the prefix.
final String prefix = "<yourkeyPrefix>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// List all objects whose names contain the specified prefix and delete the objects.
String nextMarker = null;
ObjectListing objectListing = null;
do {
    ListObjectsRequest listObjectsRequest = new ListObjectsRequest(bucketName)
            .withPrefix(prefix)
            .withMarker(nextMarker);
    objectListing = ossClient.listObjects(listObjectsRequest);
    if (objectListing.getObjectSummaries().size() > 0) {
        List<String> keys = new ArrayList<String>();
        for (OSSObjectSummary s : objectListing.getObjectSummaries()) {
            System.out.println("key name: " + s.getKey());
            keys.add(s.getKey());
        }
        DeleteObjectsRequest deleteObjectsRequest = new DeleteObjectsRequest(bucketName).wi
thKeys(keys);
        ossClient.deleteObjects(deleteObjectsRequest);
    }
    nextMarker = objectListing.getNextMarker();
} while (objectListing.isTruncated());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.8.8. Copy objects

This topic describes how to copy a small object and a large object.

Copy a small object

You can use ossClient.copyObject to copy an object that is up to 1 GB in size from a source bucket to another destination bucket within the same region. The following table describes the configuration methods of ossClient.copyObject.

Configuration method	Description
CopyObjectResult copyObject(String sourceBucketName, String sourceKey, String destinationBucketName, String destinationKey)	Allows you to specify the source bucket, source object, destination bucket, and destination object. After an object is copied, the content and metadata of the destination object are the same as that of the source object. This method is called simple copy.

Configuration method	Description
CopyObjectResult copyObject(CopyObjectRequest copyObjectRequest)	Allows you to specify metadata of the destination object and copy conditions. If the URLs of the source object and destination object for the copy operation are the same, the metadata of the source object replaces the metadata of the destination object.

The following table describes the parameters you can configure for CopyObjectRequest.

Parameter	Description	Configuration method
sourceBucketName	The name of the source bucket.	setSourceBucketName(String sourceBucketName)
sourceKey	The name of the source object.	setSourceKey(String sourceKey)
destinationBucketName	The name of the destination bucket.	setDestinationBucketName(String destinationBucketName)
destinationKey	The name of the destination object.	setDestinationKey(String destinationKey)
newObjectMetadata	The metadata of the destination object.	setNewObjectMetadata(ObjectMetadata newObjectMetadata)
matchingETagConstraints	The condition for the copy operation. If the ETag value of the source object is the same as the ETag value provided by the user, the copy operation is performed. Otherwise, an error is returned.	setMatchingETagConstraints(List<String> matchingETagConstraints)
nonmatchingEtagConstraints	The condition for the copy operation. If the ETag value of the source object is different from the ETag value provided by the user, the copy operation is performed. Otherwise, an error is returned.	setNonmatchingETagConstraints(List<String> nonmatchingEtagConstraints)
unmodifiedSinceConstraint	The condition for the copy operation. If the specified time is equal to or later than the actual modified time of the source object, the copy operation is performed. Otherwise, an error is returned.	setUnmodifiedSinceConstraint(Date unmodifiedSinceConstraint)

Parameter	Description	Configuration method
modifiedSinceConstraint	The condition for the copy operation. If the source object is modified after the specified time, the copy operation is performed. Otherwise, an error is returned.	setModifiedSinceConstraint(Date modifiedSinceConstraint)

The following table describes the parameters for CopyObjectRequest.

Parameter	Description	Configuration method
etag	The unique tag of the object.	String getETag()
lastModified	The last modified time of the object.	Date getLastModified()

Note This operation has the following limits:

- You must have read and write permissions on the source object.
- You cannot copy an object from a region to another region.
- The size of the object you want to copy cannot exceed 1 GB.

The following methods can be used to copy small objects.

- Simple copy

  The following code provides an example on how to perform simple copy:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String sourceBucketName = "<yourSourceBucketName>";
String sourceObjectName = "<yourSourceObjectName>";
String destinationBucketName = "<yourDestinationBucketName>";
String destinationObjectName = "<yourDestinationObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Copy the object.
CopyObjectResult result = ossClient.copyObject(sourceBucketName, sourceObjectName, destin
ationBucketName, destinationObjectName);
System.out.println("ETag: " + result.getETag() + " LastModified: " + result.getLastModifi
ed());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Use CopyObjectRequest to copy an object

  The following code provides an example on how to copy an object by using CopyObjectRequest:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String sourceBucketName = "<yourSourceBucketName>";
String sourceObjectName = "<yourSourceObjectName>";
String destinationBucketName = "<yourDestinationBucketName>";
String destinationObjectName = "<yourDestinationObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a CopyObjectRequest object.
CopyObjectRequest copyObjectRequest = new CopyObjectRequest(sourceBucketName, sourceObjec
tName, destinationBucketName, destinationObjectName);
// Configure new object metadata.
ObjectMetadata meta = new ObjectMetadata();
meta.setContentType("text/html");
copyObjectRequest.setNewObjectMetadata(meta);
// Copy the object.
CopyObjectResult result = ossClient.copyObject(copyObjectRequest);
System.out.println("ETag: " + result.getETag() + " LastModified: " + result.getLastModifi
ed());
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Copy a large object

To copy an object larger than 1 GB, you must use multipart copy. To implement multipart copy, perform the following operations:

1. Use ossClient.initiateMultipartUpload to initiate a multipart copy task.
2. Use ossClient.uploadPartCopy to perform the multipart copy task. All parts except for the last part must be larger than 100 KB.
3. Use ossClient.completeMultipartUpload to complete the multipart copy task.

For the complete code that is used to perform multipart copy, visit GitHub.

The following code provides an example on how to perform multipart copy:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String sourceBucketName = "<yourSourceBucketName>";
String sourceObjectName = "<yourSourceObjectName>";
String destinationBucketName = "<yourDestinationBucketName>";
String destinationObjectName = "<yourDestinationObjectName>";
ObjectMetadata objectMetadata = ossClient.getObjectMetadata(sourceBucketName, sourceObjectN
ame);
// Query the size of the object to copy.
long contentLength = objectMetadata.getContentLength();
// Set the size of each part to 10 MB.
long partSize = 1024 * 1024 * 10;
```

```
long partSize = 1024 * 1024 * 10;
// Calculate the total number of parts.
int partCount = (int) (contentLength / partSize);
if (contentLength % partSize ! = 0) {
    partCount++;
}
System.out.println("total part count:" + partCount);
// Initiate a multipart copy task. You can call the InitiateMultipartUploadRequest operation to specify the metadata of the target object.
InitiateMultipartUploadRequest initiateMultipartUploadRequest = new InitiateMultipartUploadRequest(destinationBucketName, destinationObjectName);
InitiateMultipartUploadResult initiateMultipartUploadResult = ossClient.initiateMultipartUpload(initiateMultipartUploadRequest);
String uploadId = initiateMultipartUploadResult.getUploadId();
// Start the multipart copy task.
List<PartETag> partETags = new ArrayList<PartETag>();
for (int i = 0; i < partCount; i++) {
     // Calculate the size of each part.
    long skipBytes = partSize * i;
    long size = partSize < contentLength - skipBytes ? partSize : contentLength - skipBytes;
    // Create an UploadPartCopyRequest object. You can call the UploadPartCopyRequest operation to specify conditions.
    UploadPartCopyRequest uploadPartCopyRequest =
        new UploadPartCopyRequest(sourceBucketName, sourceObjectName, destinationBucketName, destinationObjectName);
    uploadPartCopyRequest.setUploadId(uploadId);
    uploadPartCopyRequest.setPartSize(size);
    uploadPartCopyRequest.setBeginIndex(skipBytes);
    uploadPartCopyRequest.setPartNumber(i + 1);
    UploadPartCopyResult uploadPartCopyResult = ossClient.uploadPartCopy(uploadPartCopyRequest);
    // Store the returned part ETag in partETags.
    partETags.add(uploadPartCopyResult.getPartETag());
}
// Complete the multipart copy task.
CompleteMultipartUploadRequest completeMultipartUploadRequest = new CompleteMultipartUploadRequest(
                    destinationBucketName, destinationObjectName, uploadId, partETags);
ossClient.completeMultipartUpload(completeMultipartUploadRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.9. Authorized access

This topic describes how to use Security Token Service (STS) and a signed URL to authorize access.

Use STS to authorize temporary access

Alibaba Cloud Security Token Service (STS) is a web service that provides a temporary access token to a cloud computing user. You can use STS to grant a third-party application or your RAM user an access credential with a customized validity period and permissions.

STS has the following benefits:

- You need only to generate an access token and send the access token to a third-party application, instead of exposing your long-term AccessKey pair to the third-party application. You can customize the access permissions and validity period of this token.
- The access token automatically expires when the validity period ends.

The following code provides an example on how to create a signature request by using STS:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String securityToken = "<yourSecurityToken>";
// After you obtain a temporary STS credential for your OSSClient, an OSSClient instance is created based on the security token and temporary AccessKey pair (AccessKey ID and AccessKey secret) contained in the credential.
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, securityToken);
// Perform an operation in OSS. For example, you can upload or download an object.
// Upload an object to OSS.
// ossClient.putObject(putObjectRequest);
// Download an object to a local file. If the name of the object is the same as that of the local file, the object replaces the local file. If the name of the object is different from that of the local file, the object is downloaded.
// ossClient.getObject(new GetObjectRequest(bucketName, objectName), new File("<yourLocalFile>"));
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Use a signed URL to authorize temporary access

- Generate a signed URL

  You can generate a signed URL and provide it to a visitor to grant temporary access. When you generate a signed URL, you can specify the validity period of the URL to restrict the period of access from visitors.

- Generate a signed URL to allow HTTP GET requests

  The following code provides an example on how to generate a signed URL to allow HTTP GET requests:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Set the validity period of the URL to one hour.
Date expiration = new Date(new Date().getTime() + 3600 * 1000);
// Generate a signed URL to allow HTTP GET requests. Visitors can use a browser for acces
s.
URL url = ossClient.generatePresignedUrl(bucketName, objectName, expiration);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Generate a signed URL to allow other HTTP methods

  If you want to allow visitors to temporarily perform other operations such as uploading or deleting objects, you must generate a corresponding signed URL. The following code provides an example on how to upload an object by using a signed URL to allow HTTP PUT requests:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String securityToken = "<yourSecurityToken>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// After you obtain a temporary STS credential for your OSSClient, an OSSClient instance
is created based on the security token and temporary AccessKey pair (AccessKey ID and Acc
essKey secret) contained in the credential.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret, secu
rityToken);
GeneratePresignedUrlRequest request = new GeneratePresignedUrlRequest(bucketName, objectN
ame, HttpMethod.PUT);
// Set the validity period of the URL to one hour.
Date expiration = new Date(new Date().getTime() + 3600 * 1000);
request.setExpiration(expiration);
// Set ContentType.
request.setContentType(DEFAULT_OBJECT_CONTENT_TYPE);
// Set user metadata.
request.addUserMetadata("author", "aliy");
// Generate a signed URL to allow HTTP PUT requests.
URL signedUrl = ossClient.generatePresignedUrl(request);
Map<String, String> requestHeaders = new HashMap<String, String>();
requestHeaders.put(HttpHeaders.CONTENT_TYPE, DEFAULT_OBJECT_CONTENT_TYPE);
requestHeaders.put(OSS_USER_METADATA_PREFIX + "author", "aliy");
// Use the signed URL to upload an object.
ossClient.putObject(signedUrl, new ByteArrayInputStream("Hello OSS".getBytes()), -1, requ
estHeaders, true);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

Visitors can specify the HttpMethod.PUT parameter and use the signed URL to upload objects.

- Generate a signed URL with specified parameters

  The following code provides an example on how to generate a signed URL with specified parameters:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Create a request.
GeneratePresignedUrlRequest generatePresignedUrlRequest = new GeneratePresignedUrlRequest
(bucketName, objectName);
// Set HttpMethod to PUT.
generatePresignedUrlRequest.setMethod(HttpMethod.PUT);
// Add user metadata.
generatePresignedUrlRequest.addUserMetadata("author", "baymax");
// Set Content-Type.
generatePresignedUrlRequest.setContentType("application/octet-stream");
// Set the validity period of the URL to one hour.
Date expiration = new Date(new Date().getTime() + 3600 * 1000);
generatePresignedUrlRequest.setExpiration(expiration);
// Generate a signed URL.
URL url = ossClient.generatePresignedUrl(generatePresignedUrlRequest);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Use a signed URL to upload or download an object

- Use a signed URL to download an object

  The following code provides an example on how to download a specified object by using a signed URL:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
Date expiration = DateUtil.parseRfc822Date("Wed, 18 Mar 2022 14:20:00 GMT");
GeneratePresignedUrlRequest request = new GeneratePresignedUrlRequest(bucketName, objec
tName, HttpMethod.GET);
// Set the validity period.
request.setExpiration(expiration);
// Generate a signed URL to allow HTTP GET requests.
URL signedUrl = ossClient .generatePresignedUrl(request);
System.out.println("signed url for getObject: " + signedUrl);
// Use the signed URL to send a request.
Map<String, String> customHeaders = new HashMap<String, String>();
// Specify the request headers of GetObject.
customHeaders.put("Range", "bytes=100-1000");
OSSObject object = ossClient.getObject(signedUrl,customHeaders);
// Shut down the OSSClient instance.
ossClient.shutdown();
```

- Use a signed URL to upload an object

  The following code provides an example on how to upload an object by using a signed URL:

```
// The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
String endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
String accessKeyId = "<yourAccessKeyId>";
String accessKeySecret = "<yourAccessKeySecret>";
String bucketName = "<yourBucketName>";
String objectName = "<yourObjectName>";
// Create an OSSClient instance.
OSS ossClient = new OSSClientBuilder().build(endpoint, accessKeyId, accessKeySecret);
// Generate a signed URL.
Date expiration = DateUtil.parseRfc822Date("Thu, 19 Mar 2019 18:00:00 GMT");
GeneratePresignedUrlRequest request = new GeneratePresignedUrlRequest(bucketName, objec
tName, HttpMethod.PUT);
// Set the validity period.
request.setExpiration(expiration);
// Set Content-Type.
request.setContentType("application/octet-stream");
// Add user metadata.
request.addUserMetadata("author", "aliy");
// Generate a signed URL to allow HTTP PUT requests.
URL signedUrl = ossClient.generatePresignedUrl(request);
System.out.println("signed url for putObject: " + signedUrl);
// Use the signed URL to send a request.
File f = new File("<yourLocalFile>");
FileInputStream fin = new FileInputStream(f);
// Specify the request headers of PutObject.
Map<String, String> customHeaders = new HashMap<String, String>();
customHeaders.put("Content-Type", "application/octet-stream");
customHeaders.put("x-oss-meta-author", "aliy");
PutObjectResult result = ossClient.putObject(signedUrl, fin, f.length(), customHeaders)
;
// Shut down the OSSClient instance.
ossClient.shutdown();
```

6.1.2.1.10. IMG

OSS Image Processing (IMG) is a secure, cost-effective, and highly reliable image processing service that can process large amounts of data. After you upload source images to OSS, you can call RESTful API operations to process the images anytime, anywhere, and on any Internet device. You can use OSS IMG to build your own image processing service.

Basic features

OSS IMG provides the following features:

- Query image information.
- Convert image formats.
- Resize, crop, and rotate images.
- Apply image effect.
- Add image, text, and text-and-image watermarks to images.

- Customize image processing styles. Log on to the OSS console. Click a bucket name to go to the bucket details page. Click the **Image Processing (IMG)** tab and click **Create Rule** to customize an image processing style.
- Use cascade processing to call multiple IMG features.

Usage

You can use standard `HTTP GET` requests to access IMG. All processing parameters are encoded in the query string of a URL.

- Anonymous access

  If the ACL of an image object is public-read, as described in the following table, anonymous users can access the image object.

Bucket ACL	Object ACL
public-read or public-read-write	default
Any ACL	public-read or public-read-write

  You can anonymously access IMG by using a third-level domain in the following format:

```
http://bucket.<endpoint>/object?x-oss-process=image/action,parame_value
```

Parameter	Description
bucket	The name of the bucket.
endpoint	The domain name used to access the region.
object	The name of the image object.
image	The identifier reserved by IMG.
action	The operations performed on images, such as scaling, cropping, and rotating.
param	The parameters corresponding to the operations performed on the images.

  - Basic operations

    For example, you can scale an image to a width of 100 and adjust the height based on the ratio:

```
http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
```

- Customize image styles

  You can anonymously access IMG by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=style/<yourStyleName>
  ```

  - style: the identifier reserved by IMG for the custom style.
  - yourStyleName: the name of the custom style. The name is specified by the Rule Name parameter when you create the custom style in the console.

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=style/oss-pic-style-w-100
  ```

- Cascade processing

  You can use cascade processing to perform multiple operations in sequence on an image by using a URL in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction1>,<yourParamValue1>/<yourAction2>,<yourParamValue2>/...
  ```

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100/rotate,90
  ```

- Access by using HTTPS

  IMG supports access by using HTTPS. Example:

  ```
  https://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
  ```

- Authorized access

  If the ACL of an image object is private, you must have permissions on the image object before you can perform operations on it.

Bucket ACL	Object ACL
private	default
Any ACL	private

  The following code provides an example on how to generate a signed URL to access IMG:

```
    String endpoint = "<Your OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com>"
;
    String accessKeyId = "<accessKeyId>";
    String accessKeySecret = "<accessKeySecret>";
    String bucketName = "<bucketName>";
    private static String key = "example.jpg";
    OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
    // Configure the IMG style.
    String style = "image/resize,m_fixed,w_100,h_100/rotate,90";
    // Set the validity period to 10 minutes.
    Date expiration = new Date(new Date().getTime() + 1000 * 60 * 10 );
    GeneratePresignedUrlRequest req = new GeneratePresignedUrlRequest(bucketName, key, Ht
tpMethod.GET);
    req.setExpiration(expiration);
    req.setProcess(style);
    URL signedUrl = ossClient.generatePresignedUrl(req);
    System.out.println(signedUrl);
```

> **Note**
> - You can set Create Style, HTTPS, and Cascading Processing for authorized access.
> - Use code in the following format to specify the expiration time: `Date expiration = DateUtil.parseRfc822Date("Wed, 21 Dec 2022 14:20:00 GMT");` .

- Access by using SDKs

  You can use OSS SDKs to access and process image objects of any ACLs.

  > **Note**
  > - For the complete IMG code, visit GitHub.
  > - You can use OSS SDKs to process image objects by configuring Create Style, HTTPS, and Cascading Processing.

  - Basic operations

    The following code provides an example on how to perform basic IMG operations including obtaining image information, converting image formats, resizing, cropping, rotating, watermarking, and applying effects:

```
    String endpoint = "<Your OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com
>";
    String accessKeyId = "<accessKeyId>";
    String accessKeySecret = "<accessKeySecret>";
    String bucketName = "<bucketName>";
    String key = "example.jpg";
    OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
    // Resize the image.
    String style = "image/resize,m_fixed,w_100,h_100";
    GetObjectRequest request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-resize.jpg"));
    // Crop the image.
    style = "image/crop,w_100,h_100,x_100,y_100,r_1";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-crop.jpg"));
    // Rotate the image.
    style = "image/rotate,90";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-rotate.jpg"));
    // Sharpen the image.
    style = "image/sharpen,100";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-sharpen.jpg"));
    // Add watermarks to the image.
    style = "image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-watermark.jpg"));
    // Convert the image format.
    style = "image/format,png";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-format.png"));
    // Obtain the image information.
    style = "image/info";
    request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-info.txt"));
    ossClient.shutdown();
```

- Custom image styles

```
    String endpoint = "<Your OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com
>";
    String accessKeyId = "<accessKeyId>";
    String accessKeySecret = "<accessKeySecret>";
    String bucketName = "<bucketName>";
    String key = "example.jpg";
    OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
    // Customize the image style.
    String style = "style/oss-pic-style-w-100";
    GetObjectRequest request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-new.jpg"));
    ossClient.shutdown();
```

- Cascade processing

```
    String endpoint = "<Your OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com
>";
    String accessKeyId = "<accessKeyId>";
    String accessKeySecret = "<accessKeySecret>";
    String bucketName = "<bucketName>";
    private static String key = "example.jpg";
    OSSClient ossClient = new OSSClient(endpoint, accessKeyId, accessKeySecret);
    // Perform cascade processing.
    String style = "image/resize,m_fixed,w_100,h_100/rotate,90";
    GetObjectRequest request = new GetObjectRequest(bucketName, key);
    request.setProcess(style);
    ossClient.getObject(request, new File("example-new.jpg"));
    ossClient.shutdown();
```

6.1.2.1.11. Handle exceptions

If an exception occurs when you call the OSSClient class-related API operation, the related operation fails. Otherwise, the related operation succeeds. If an exception occurs, the data returned by the operation is invalid. OSS SDK for Java exceptions are classified into two types: OSSException and ClientException. Both are subclasses of RuntimeException.

Examples

```
try {
    // Do some operations with the instance here, such as put object...
    client.putObject(...);
} catch (OSSException oe) {
    System.out.println("Caught an OSSException, which means your request made it to OSS, "
            + "but was rejected with an error response for some reason.") ;
    System.out.println("Error Message: " + oe.getErrorCode());
    System.out.println("Error Code:       " + oe.getErrorCode());
    System.out.println("Request ID:      " + oe.getRequestId());
    System.out.println("Host ID:           " + oe.getHostId());
} catch (ClientException ce) {
    System.out.println("Caught an ClientException, which means the client encountered "
            + "a serious internal problem while trying to communicate with OSS, "
            + "such as not being able to access the network.") ;
    System.out.println("Error Message: " + ce.getMessage());
} finally {
    if (client ! = null) {
        client.shutdown();
    }
}
```

ClientException

ClientException indicates the exception that occurs when a client sends a request or transmit data to OSS. For example, ClientException is returned when a request is sent under poor network conditions. ClientException is also returned when an I/O exception occurs during object upload.

OSSException

OSSException indicates an error response from OSS. The error code and error message are returned so that you can find the problem and handle it properly.

OSSException involves the following error information:

- Code: the error code that OSS returns to the user.
- Message: the detailed error message provided by OSS.
- RequestId: the UUID of a request. If the problem persists, you can seek help from OSS development engineers and provide them with the request ID.
- HostId: the ID of a host to identify the accessed OSS cluster, which is the same as the host ID specified in the request.

Error codes

Error code	Error message	HTTP status code
AccessDenied	The error message returned because the access is denied.	403
BucketAlreadyExists	The error message returned because the bucket already exists.	409
BucketNotEmpty	The error message returned because the bucket is not empty.	409

Error code	Error message	HTTP status code
EntityTooLarge	The error message returned because the entity exceeds the maximum allowed size.	400
EntityTooSmall	The error message returned because the entity is smaller than the minimum allowed size.	400
FileGroupTooLarge	The error message returned because the object group exceeds the maximum allowed size.	400
FilePartNotExist	The error message returned because the specified part does not exist.	400
FilePartStale	The error message returned because the part has expired.	400
InvalidArgument	The error message returned because the parameter format is invalid.	400
InvalidAccessKeyId	The error message returned because the specified Accesskey ID does not exist.	403
InvalidBucketName	The error message returned because the bucket name is invalid.	400
InvalidDigest	The error message returned because the digest is invalid.	400
InvalidObjectName	The error message returned because the object name is invalid.	400
InvalidPart	The error message returned because the part is invalid.	400
InvalidPartOrder	The error message returned because the part sequence is invalid.	400
InvalidTargetBucketForLogging	The error message returned because the destination bucket specified for logging is invalid.	400
InternalError	The error message returned because an internal OSS error occurs.	500
MalformedXML	The error message returned because the XML format is invalid.	400
MethodNotAllowed	The error message returned because the method is not supported.	405

Error code	Error message	HTTP status code
MissingArgument	The error message returned because the required parameters are not set.	411
MissingContentLength	The error message returned because the content length is not specified.	411
NoSuchBucket	The error message returned because the specified bucket does not exist.	404
NoSuchKey	The error message returned because the specified object does not exist.	404
NoSuchUpload	The error message returned because the specified multipart upload ID does not exist.	404
NotImplemented	The error message returned because the method cannot be implemented.	501
PreconditionFailed	The error message returned because a precondition error occurs.	412
RequestTimeTooSkewed	The error message returned because the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes.	403
RequestTimeout	The error message returned because the request times out.	400
SignatureDoesNotMatch	The error message returned because the signature is invalid.	403
InvalidEncryptionAlgorithmError	The error message returned because the specified encryption algorithm based on entropy encoding is invalid.	400

6.1.2.1.12. FAQ

This topic lists the causes and solutions for common errors you may encounter when you use OSS SDK for Java.

JAR conflicts

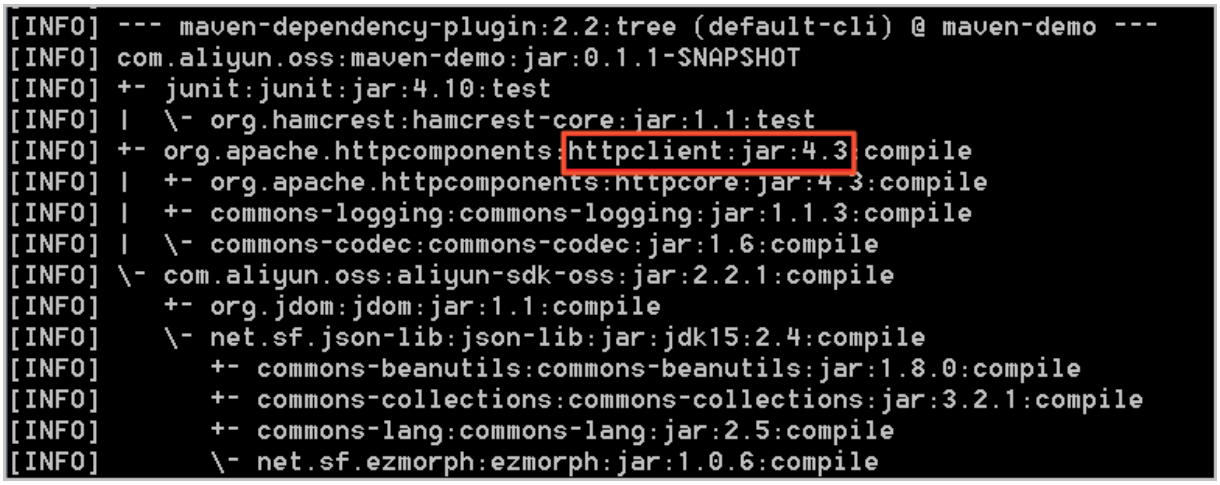
If an error similar to the following is displayed when you use OSS SDK for Java, a JAR conflict is in your project:

```
Exception in thread "main" java.lang.NoClassDefFoundError: org/apache/http/ssl/TrustStrateg
y
    at com.aliyun.oss.OSSClient.<init>(OSSClient.java:268)
    at com.aliyun.oss.OSSClient.<init>(OSSClient.java:193)
    at com.aliyun.oss.demo.HelloOSS.main(HelloOSS.java:77)
Caused by: java.lang.ClassNotFoundException: org.apache.http.ssl.TrustStrategy
    at java.net.URLClassLoader$1.run(URLClassLoader.java:366)
    at java.net.URLClassLoader$1.run(URLClassLoader.java:355)
    at java.security.AccessController.doPrivileged(Native Method)
    at java.net.URLClassLoader.findClass(URLClassLoader.java:354)
    at java.lang.ClassLoader.loadClass(ClassLoader.java:425)
    at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:308)
    at java.lang.ClassLoader.loadClass(ClassLoader.java:358)
    ... 3 more
```

Or

```
Exception in thread "main" java.lang.NoSuchFieldError: INSTANCE
 at org.apache.http.impl.io.DefaultHttpRequestWriterFactory.<init>(DefaultHttpRequestWriter
Factory.java:52)
 at org.apache.http.impl.io.DefaultHttpRequestWriterFactory.<init>(DefaultHttpRequestWriter
Factory.java:56)
 at org.apache.http.impl.io.DefaultHttpRequestWriterFactory.<clinit>(DefaultHttpRequestWrit
erFactory.java:46)
 at org.apache.http.impl.conn.ManagedHttpClientConnectionFactory.<init>(ManagedHttpClientCo
nnectionFactory.java:82)
 at org.apache.http.impl.conn.ManagedHttpClientConnectionFactory.<init>(ManagedHttpClientCo
nnectionFactory.java:95)
 at org.apache.http.impl.conn.ManagedHttpClientConnectionFactory.<init>(ManagedHttpClientCo
nnectionFactory.java:104)
 at org.apache.http.impl.conn.ManagedHttpClientConnectionFactory.<clinit>(ManagedHttpClient
ConnectionFactory.java:62)
 at org.apache.http.impl.conn.PoolingHttpClientConnectionManager$InternalConnectionFactory.
<init>(PoolingHttpClientConnectionManager.java:572)
 at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.<init>(PoolingHttpClientCo
nnectionManager.java:174)
 at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.<init>(PoolingHttpClientCo
nnectionManager.java:158)
 at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.<init>(PoolingHttpClientCo
nnectionManager.java:149)
 at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.<init>(PoolingHttpClientCo
nnectionManager.java:125)
 at com.aliyun.oss.common.comm.DefaultServiceClient.createHttpClientConnectionManager(Defau
ltServiceClient.java:237)
 at com.aliyun.oss.common.comm.DefaultServiceClient.<init>(DefaultServiceClient.java:78)
 at com.aliyun.oss.OSSClient.<init>(OSSClient.java:268)
 at com.aliyun.oss.OSSClient.<init>(OSSClient.java:193)
 at OSSManagerImpl.upload(OSSManagerImpl.java:42)
 at OSSManagerImpl.main(OSSManagerImpl.java:63)
```

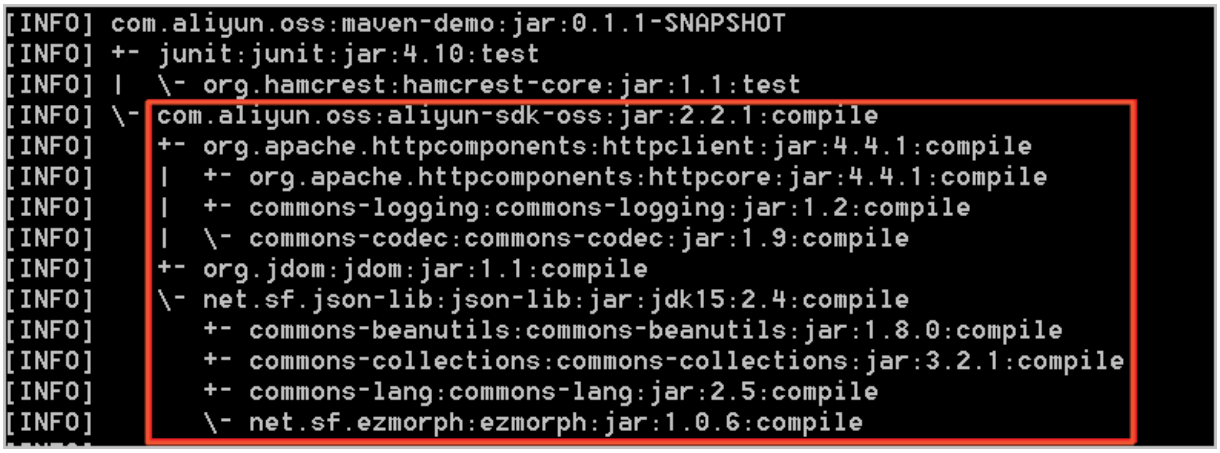
Cause: A possible cause is that the OSS Java SDK uses Apache httpclient 4.4.1, whereas your project uses a version of Apache httpclient or commons-httpclient that conflicts with Apache httpclient 4.4.1. To view the JAR package and its version that is used in your project, run the `mvn dependency:tree` command in the directory of the project. The following figure shows that the project uses Apache HttpClient 4.3.



Solution: Use one of the following methods to resolve JAR conflicts:

- Use consistent versions of Apache HttpClient. If your project uses a version of Apache HttpClient that conflicts with Apache HttpClient 4.4.1, use Apache HttpClient 4.4.1 and delete all other Apache HttpClient version dependencies in the pom.xml file. If your project uses Commons HttpClient, conflicts may also occur. To resolve these conflicts, delete Commons HttpClient.
- Resolve dependency conflicts. If your project is dependent on multiple third-party packages and the third-party packages are dependent on different versions of Apache HttpClient, your project may contain dependency conflicts. Use exclusions to resolve these conflicts. For more information, visit Maven Guides.

OSS SDK for Java is dependent on the following package versions. The solution to conflicts is similar to that for HttpClient.



Missing packages

An error similar to the following is displayed when you use OSS SDK for Java:

```
Exception in thread "main" java.lang.NoClassDefFoundError: org/apache/http/auth/Credentials
        at com.aliyun.oss.OSSClient.<init>(OSSClient.java:268)
        at com.aliyun.oss.OSSClient.<init>(OSSClient.java:193)
        at com.aliyun.oss.demo.HelloOSS.main(HelloOSS.java:76)
Caused by: java.lang.ClassNotFoundException: org.apache.http.auth.Credentials
        at java.net.URLClassLoader$1.run(URLClassLoader.java:366)
        at java.net.URLClassLoader$1.run(URLClassLoader.java:355)
        at java.security.AccessController.doPrivileged(Native Method)
        at java.net.URLClassLoader.findClass(URLClassLoader.java:354)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:425)
        at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:308)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:358)
        ... 3 more
```

Or

```
Exception in thread "main" java.lang.NoClassDefFoundError: org/apache/http/protocol/HttpCon
text
        at com.aliyun.oss.OSSClient.<init>(OSSClient.java:268)
        at com.aliyun.oss.OSSClient.<init>(OSSClient.java:193)
        at com.aliyun.oss.demo.HelloOSS.main(HelloOSS.java:76)
Caused by: java.lang.ClassNotFoundException: org.apache.http.protocol.HttpContext
        at java.net.URLClassLoader$1.run(URLClassLoader.java:366)
        at java.net.URLClassLoader$1.run(URLClassLoader.java:355)
        at java.security.AccessController.doPrivileged(Native Method)
        at java.net.URLClassLoader.findClass(URLClassLoader.java:354)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:425)
        at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:308)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:358)
        ... 3 more
```

Or

```
Exception in thread "main" java.lang.NoClassDefFoundError: org/jdom/input/SAXBuilder
        at com.aliyun.oss.internal.ResponseParsers.getXmlRootElement(ResponseParsers.java:6
45)
        at ... ...
        at com.aliyun.oss.OSSClient.doesBucketExist(OSSClient.java:471)
        at com.aliyun.oss.OSSClient.doesBucketExist(OSSClient.java:465)
        at com.aliyun.oss.demo.HelloOSS.main(HelloOSS.java:82)
Caused by: java.lang.ClassNotFoundException: org.jdom.input.SAXBuilder
        at java.net.URLClassLoader$1.run(URLClassLoader.java:366)
        at java.net.URLClassLoader$1.run(URLClassLoader.java:355)
        at java.security.AccessController.doPrivileged(Native Method)
        at java.net.URLClassLoader.findClass(URLClassLoader.java:354)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:425)
        at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:308)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:358)
        ... 11 more
```

Cause: The JAR package used to compile or run OSS SDK for Java may be missing in your project. OSS SDK for Java depends on the following JAR packages:

- aliyun-sdk-oss-2.2.1.jar
- hamcrest-core-1.1.jar
- jdom-1.1.jar
- commons-codec-1.9.jar
- httpclient-4.4.1.jar
- commons-logging-1.2.jar
- httpcore-4.4.1.jar
- log4j-1.2.15.jar

All packages except the log4j-1.2.15.jar package are required for OSS Java SDK. However, if you want to enable logging, you must also include the log4j-1.2.15.jar package.

Solution: Add packages on which OSS SDK for Java is dependent to your projects by using the following methods:

- If you run your project in Eclipse, import dependencies to Eclipse, as instructed in the "Method 2: Import a JAR package" section of Installation.
- If you run your project in Ant, add the packages on which OSS SDK for Java is dependent to the lib directory of the project.
- If you use the .javac or .java file, use the -classpath or -cp option to specify the path in which OSS Java SDK dependent packages are added, or save the Java SDK dependencies to classpath.

Connection timeout

If a similar exception is displayed when you run OSS SDK for Java:

```
com.aliyun.oss.ClientException: SocketException
    at com.aliyun.oss.common.utils.ExceptionFactory.createNetworkException(ExceptionFactory
.java:71)
    at com.aliyun.oss.common.comm.DefaultServiceClient.sendRequestCore(DefaultServiceClient
.java:116)
    at com.aliyun.oss.common.comm.ServiceClient.sendRequestImpl(ServiceClient.java:121)
    at com.aliyun.oss.common.comm.ServiceClient.sendRequest(ServiceClient.java:67)
    at com.aliyun.oss.internal.OSSOperation.send(OSSOperation.java:92)
    at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:140)
    at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:111)
    at com.aliyun.oss.internal.OSSBucketOperation.getBucketInfo(OSSBucketOperation.java:115
2)
    at com.aliyun.oss.OSSClient.getBucketInfo(OSSClient.java:1220)
    at com.aliyun.oss.OSSClient.getBucketInfo(OSSClient.java:1214)
    at com.aliyun.oss.demo.HelloOSS.main(HelloOSS.java:94)
Caused by: org.apache.http.conn.HttpHostConnectException: Connect to oss-test.oss-cn-hangzh
ou-internal.aliyuncs.com:80 [oss-test.oss-cn-hangzhou-internal.aliyuncs.com/10.84.135.99] f
ailed: Connection timed out: connect
    at org.apache.http.impl.conn.DefaultHttpClientConnectionOperator.connect(DefaultHttpCli
entConnectionOperator.java:151)
    at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.connect(PoolingHttpClie
ntConnectionManager.java:353)
    at org.apache.http.impl.execchain.MainClientExec.establishRoute(MainClientExec.java:380
)
    at org.apache.http.impl.execchain.MainClientExec.execute(MainClientExec.java:236)
    at org.apache.http.impl.execchain.ProtocolExec.execute(ProtocolExec.java:184)
    at org.apache.http.impl.execchain.RedirectExec.execute(RedirectExec.java:110)
    at org.apache.http.impl.client.InternalHttpClient.doExecute(InternalHttpClient.java:184
)
    at org.apache.http.impl.client.CloseableHttpClient.execute(CloseableHttpClient.java:82)
    at com.aliyun.oss.common.comm.DefaultServiceClient.sendRequestCore(DefaultServiceClient
.java:113)
    ... 9 more
```

Cause: The endpoint is incorrect or the network is disconnected.

Solution: Solve the network problem and try again.

org.apache.http.NoHttpResponseException: The target server failed to respond

If a similar exception is displayed when you run OSS SDK for Java:

```
com.aliyun.oss.ClientException: Unknown
        at com.aliyun.oss.common.utils.ExceptionFactory.createNetworkException(ExceptionFactory.java:68) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.common.comm.DefaultServiceClient.sendRequestCore(DefaultServiceClient.java:115) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.common.comm.ServiceClient.sendRequestImpl(ServiceClient.java:121) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.common.comm.ServiceClient.sendRequest(ServiceClient.java:67) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.internal.OSSOperation.send(OSSOperation.java:92) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:140) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:111) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.internal.OSSMultipartOperation.initiateMultipartUpload(OSSMultipartOperation.java:206) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.aliyun.oss.OSSClient.initiateMultipartUpload(OSSClient.java:765) ~[aliyun-sdk-oss-2.1.0.jar:na]
        at com.taobao.agoo.dump.client.OssTools.multipartUpload(OssTools.java:79) ~[agoo-dump-client-2.0.0-SNAPSHOT.jar:na]
        at com.taobao.agoo.dump.biz.manager.TaskExcutorManager$UploadTask.run(TaskExcutorManager.java:114) ~[agoo-dump-biz-2.0.0-SNAPSHOT.jar:na]
        at java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:471) [na:1.7.0_51]
        at java.util.concurrent.FutureTask.run(FutureTask.java:262) [na:1.7.0_51]
        at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1145) [na:1.7.0_51]
        at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:615) [na:1.7.0_51]
        at java.lang.Thread.run(Thread.java:744) [na:1.7.0_51]
Caused by: org.apache.http.NoHttpResponseException: The target server failed to respond
        at org.apache.http.impl.conn.DefaultHttpResponseParser.parseHead(DefaultHttpResponseParser.java:143) ~[httpclient-4.4.jar:4.4]
        at org.apache.http.impl.conn.DefaultHttpResponseParser.parseHead(DefaultHttpResponseParser.java:57) ~[httpclient-4.4.jar:4.4]
        at org.apache.http.impl.io.AbstractMessageParser.parse(AbstractMessageParser.java:261) ~[httpcore-4.4.jar:4.4]
        at org.apache.http.impl.DefaultBHttpClientConnection.receiveResponseHeader(DefaultBHttpClientConnection.java:165) ~[httpcore-4.4.jar:4.4]
        at org.apache.http.impl.conn.CPoolProxy.receiveResponseHeader(CPoolProxy.java:167) ~[httpclient-4.4.jar:4.4]
        at org.apache.http.protocol.HttpRequestExecutor.doReceiveResponse(HttpRequestExecutor.java:272) ~[httpcore-4.4.jar:4.4]
```

Cause: The preceding error may occur if expired connections are used. This error occurs only when a Java SDK version earlier than 2.1.2 is used.

Solution: Upgrade OSS SDK for Java to V2.1.2 or later.

OSS SDK for Java stops responding when OSS SDK for Java is called

If OSS SDK for Java stops responding when you call OSS SDK for Java, call `jstack -l <pid>` to view the stack. The similar error is displayed at the following positions:

```
"main" prio=6 tid=0x000000000291e000 nid=0xc40 waiting on condition [0x0000000002dae000]
java.lang.Thread.State: WAITING (parking)
    at sun.misc.Unsafe.park(Native Method)
    - parking to wait for  <0x00000007d85697f8> (a java.util.concurrent.locks.AbstractQueue
dSynchronizer$ConditionObject)
    at java.util.concurrent.locks.LockSupport.park(LockSupport.java:186)
    at java.util.concurrent.locks.AbstractQueuedSynchronizer$ConditionObject.await(Abstract
QueuedSynchronizer.java:2043)
    at org.apache.http.pool.PoolEntryFuture.await(PoolEntryFuture.java:138)
    at org.apache.http.pool.AbstractConnPool.getPoolEntryBlocking(AbstractConnPool.java:306
)
    at org.apache.http.pool.AbstractConnPool.access$000(AbstractConnPool.java:64)
    at org.apache.http.pool.AbstractConnPool$2.getPoolEntry(AbstractConnPool.java:192)
    at org.apache.http.pool.AbstractConnPool$2.getPoolEntry(AbstractConnPool.java:185)
    at org.apache.http.pool.PoolEntryFuture.get(PoolEntryFuture.java:107)
    at org.apache.http.impl.conn.PoolingHttpClientConnectionManager.leaseConnection(Pooling
HttpClientConnectionManager.java:276)
    at org.apache.http.impl.conn.PoolingHttpClientConnectionManager$1.get(PoolingHttpClient
ConnectionManager.java:263)
    at org.apache.http.impl.execchain.MainClientExec.execute(MainClientExec.java:190)
    at org.apache.http.impl.execchain.ProtocolExec.execute(ProtocolExec.java:184)
    at org.apache.http.impl.execchain.RedirectExec.execute(RedirectExec.java:110)
    at org.apache.http.impl.client.InternalHttpClient.doExecute(InternalHttpClient.java:184
)
    at org.apache.http.impl.client.CloseableHttpClient.execute(CloseableHttpClient.java:82)
    at com.aliyun.oss.common.comm.DefaultServiceClient.sendRequestCore(DefaultServiceClient
.java:113)
    at com.aliyun.oss.common.comm.ServiceClient.sendRequestImpl(ServiceClient.java:123)
    at com.aliyun.oss.common.comm.ServiceClient.sendRequest(ServiceClient.java:68)
    at com.aliyun.oss.internal.OSSOperation.send(OSSOperation.java:94)
    at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:146)
    at com.aliyun.oss.internal.OSSOperation.doOperation(OSSOperation.java:113)
    at com.aliyun.oss.internal.OSSObjectOperation.getObject(OSSObjectOperation.java:229)
    at com.aliyun.oss.OSSClient.getObject(OSSClient.java:629)
    at com.aliyun.oss.OSSClient.getObject(OSSClient.java:617)
    at samples.HelloOSS.main(HelloOSS.java:49)
```

Cause: Connection leaks occur in the connection pool. It may be because `OSSClient.getObject` is not closed after use.

Solution: Check your program and ensure that no connection leaks occur. The following code provides an example on how to close ossObject:

```
// Read an object.
OSSObject ossObject = ossClient.getObject(bucketName, objectName);
// Perform operations in OSS.
// Close your ossObject.
ossObject.close();
```

Connection closure

An error similar to the following is displayed when you use ossClient.getObject:

```
Exception in thread "main" org.apache.http.ConnectionClosedException: Premature end of Cont
ent-Length delimited message body (expected: 11990526; received: 202880
    at org.apache.http.impl.io.ContentLengthInputStream.read(ContentLengthInputStream.java:
180)
    at org.apache.http.impl.io.ContentLengthInputStream.read(ContentLengthInputStream.java:
200)
    at org.apache.http.impl.io.ContentLengthInputStream.close(ContentLengthInputStream.java
:103)
    at org.apache.http.impl.execchain.ResponseEntityProxy.streamClosed(ResponseEntityProxy.
java:128)
    at org.apache.http.conn.EofSensorInputStream.checkClose(EofSensorInputStream.java:228)
    at org.apache.http.conn.EofSensorInputStream.close(EofSensorInputStream.java:174)
    at java.io.FilterInputStream.close(FilterInputStream.java:181)
    at java.io.FilterInputStream.close(FilterInputStream.java:181)
    at com.aliyun.oss.event.ProgressInputStream.close(ProgressInputStream.java:147)
    at java.io.FilterInputStream.close(FilterInputStream.java:181)
    at samples.HelloOSS.main(HelloOSS.java:39)
```

Cause: The interval between the two data reading attempts exceeded one minute. OSS closes the connection if no data is sent or received after more than one minute. This error occurs when your application functions as follows and the time for the application to process data varies: Read part of the data, process the data, read the data, and then process the data.

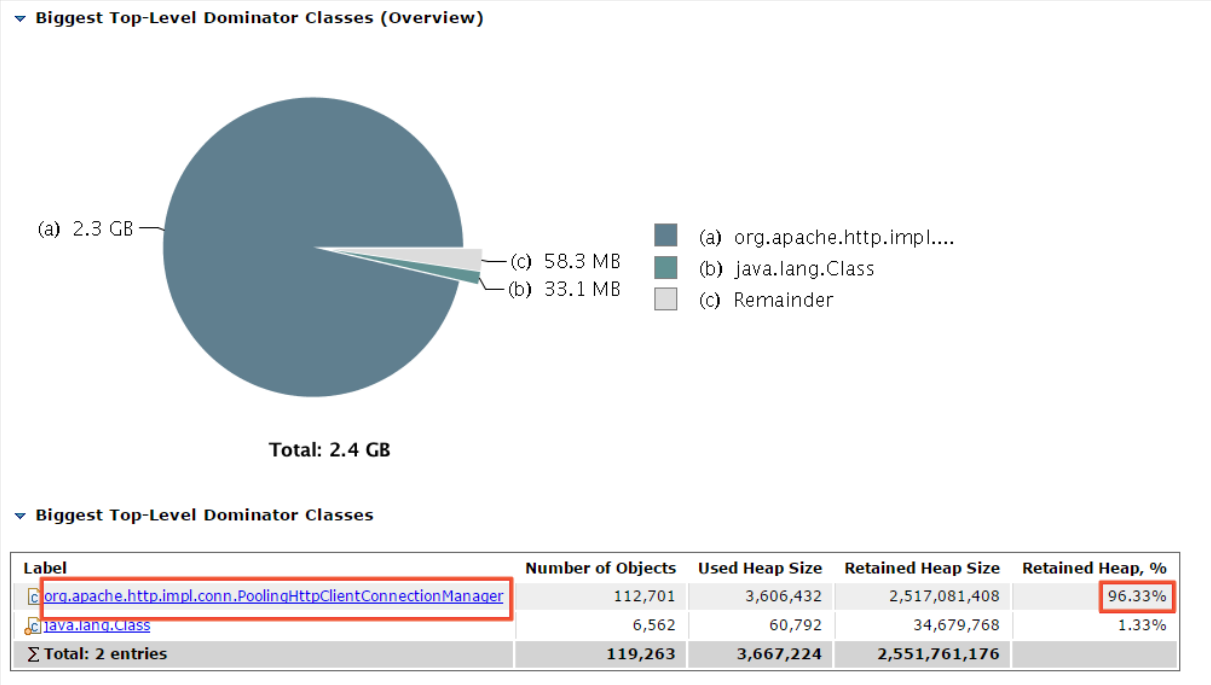
Solution: If you need to read part of the data during unspecified time periods, you can use range download to avoid connection closure during data reading.

Memory leaks

Memory leaks occur when OSS SDK for Java program runs for an extended period of time. This period ranges from several hours to several days based on the amount of access traffic.

Cause: Use the memory analysis tool to analyze the memory usage. We recommend that you use Eclipse Memory Analyzer (MAT) to analyze memory usage. For more information, visit Use MAT for Heap Dump File Analysis.

If the analysis result is similar to that shown in the following figure, PoolingHttpClientConnectionManager takes up 96% of memory. The cause is that the new OSSClient command is run multiple times while ossClient.shutdown is not called. As a result, memory leaks occur.



Solution: You must ensure that ossClient.shutdown is called after you run the new OSSClient command.

InterruptedException occurs when OSSClient.shutdown is called

A similar exception is displayed when OSSClient.shutdown is called:

```
java.lang.InterruptedException: sleep interrupted
        at java.lang.Thread.sleep(Native Method)
        at com.aliyun.oss.common.comm.IdleConnectionReaper.run(IdleConnectionReaper:76)
```

Cause: A background thread IdleConnectionReaper from OSSClient shuts down idle connections in a timely manner. If the shutdown method is called when the IdleConnectionReaper thread is asleep, the preceding exception is displayed.

Solution:

- Upgrade OSS SDK for Java to version 2.3.0 or later because this problem is fixed in OSS SDK for Java V2.3.0.
- For versions earlier than OSS Java SDK version 2.3.0, use the following code to ignore the exception:

```
try {
serviceClient.shutdown();
} catch(Exception e) {
}
```

6.1.2.2. Python-SDK

6.1.2.2.1. Preface

This topic describes the sample code of OSS SDK for Python in various use cases.

Source code

For the source code of OSS SDK for Python, visit GitHub.

Sample programs

The sample code of OSS SDK for Python is in the examples directory. For more information, visit GitHub. The following table describes the sample files in the sample programs.

Sample file	Description
object_basic.py	Shows you how to perform basic object-related operations such as object upload, download, list, and deletion.
object_extra.py	Shows you how to perform advanced object-related operations such as configure the language and user metadata, copy objects, and append objects.
upload.py	Shows you how to perform advanced object upload operations such as resumable upload and multipart upload.
download.py	Shows you how to perform object download operations such as object download, range download, and resumable download.
object_check.py	Shows you how to verify data during upload and download, including MD5 verification and CRC.
object_progress.py	Shows you how to use a progress bar during upload and download.
object_callback.py	Shows you how to perform upload callback.
object_post.py	Shows you how to use PostObject. The PostObject implementation is independent of the SDK for Python.
sts.py	Shows you how to use STS, including obtain the temporary AccessKey pair by assuming a role and use the temporary AccessKey pair to access OSS.
live_channel.py	Shows you how to use LiveChannel.
image.py	Shows you how to use Image Processing (IMG).
bucket.py	Shows you how to manage buckets such as bucket creation, deletion, and listing.

6.1.2.2.2. Installation

This topic describes how to install OSS SDK for Python.

Preparation

The version of OSS SDK for Python in this topic is compatible with Python 2.6, 2.7, 3.3, 3.4, 3.5, and 3.6.

- Install the environment

  For more information about how to install an appropriate version of Python, visit python.

- Check the Python version

  Run the `python -V` command to check Python version.

  In Windows, if a message is displayed, indicating that it is not an internal or external command, edit the environment variable `Path`. Add the installation path of Python and pip. The installation path of pip is the Scripts directory under the installation path of Python.

  > **Note** You may need to restart your computer to ensure that the environment variables take effect.

Download OSS SDK for Python

- Download from GitHub
- Download previous versions

For more information, see API Reference.

Install python-devel

OSS SDK for Python uses the crcmod library to calculate the value of CRC. The crcmod library depends on the Python.h file. If the Python.h file is missing, SDK installation is not affected but the installation of crcmod extensions in C fails. Therefore, the efficiency of operations such as object upload and download is low. Install python-devel if it does not exist.

- When you install Python in Windows or Mac OS X systems, the Python.h file is installed together with Python. Therefore, you do not need to install python-devel.
- When you install Python in CentOS, RHEL, or Fedora systems, run the following command to install python-devel:

  ```
  yum install python-devel
  ```

- When you install Python in Debian or Ubuntu systems, run the following command to install python-devel:

  ```
  apt-get install python-dev
  ```

Install OSS SDK for Python

- Use pip

  Run the following command:

  ```
  pip install oss2
  ```

  > **Note** If pip is not installed in your environment, visit the official pip website to install pip.

- Use the source code

  Click here to visit GitHub and download the OSS SDK for Python package of an appropriate version. Decompress the package. Check whether the setup.py file exists in the directory and then run the following command:

```
python setup.py install
```

Verification

- Verify the version of OSS SDK for Python
  i. Enter `python` in the command line and press Enter to go to the Python environment.
  ii. Run the following command to verify the version of OSS SDK for Python:

  ```
  >>> import oss2
  >>> oss2.__version__
  '2.0.0'
  ```

  If an output similar to the preceding example is displayed, OSS SDK for Python version 2.0.0 is installed.

- Verify crcmod

  OSS SDK for Python uses the following methods to calculate the value of CRC: the C extension mode, which uses the crcmod dependent library to call the _crcfunext.so extension library to calculate the CRC value, and the Python-only mode. The performance of the C extension mode is superior than the Python-only mode. The crcmod library is automatically installed together with oss2. For more information about crcmod, visit crcmod introduction.

  When you use OSS SDK for Python, if the object upload and download efficiency remains much lower than that of other tools or other SDKs, the installation of crcmod extensions in C may fail. In this case, the Python-only mode is used to calculate the value of CRC for object upload and download.

  You can use the following methods to determine whether the C extension mode of the crcmod library is installed:

  i. Enter `python` in the command line and press the Enter key to go the Python environment.
  ii. Enter `import crcmod._crcfunext` and press Enter.
    - If no error message is displayed, the crcmod extensions in C are installed.

- If the following error message is displayed, the installation of crcmod extensions in C failed:

```
>>> import crcmod._crcfunext
Traceback (most recent call last):
File "<stdin>", line 1, in <module>
ImportError: No module named _crcfunext
```

When you compile the crcmod library, the _crcfunext.so file depends on the Python.h file. The error occurs because the Python.h file does not exist in the system, which causes the _crcfunext.so file failed to be generated. Therefore, the Python-only mode is used to calculate the value of CRC. OSS SDK for Python is installed, but the efficiency of operations such as object upload and download is low.

If the error occurs, perform the following operations:

a. Run the following command to uninstall the crcmod library:

```
pip uninstall crcmod
```

b. Install python-devel.

c. Run the following command to re-install the crcmod library:

```
pip install crcmod
```

If the crcmod library fails to be installed after you perform the preceding operations, uninstall the crcmod library. Run the following command to view the detailed causes of the installation failures.

```
pip install crcmod -v
```

Uninstall OSS SDK for Python

If OSS SDK for Python fails to be installed, uninstall OSS SDK for Python by using pip and reinstall OSS SDK for Python. Run the following code to uninstall OSS SDK for Python:

```
pip uninstall oss2
```

6.1.2.2.3. Quick start

This topic describes how to use OSS SDK for Python to perform routine operations such as create buckets, upload objects, and download objects.

Create a bucket

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set the ACL of the bucket to private.
bucket.create_bucket(oss2.models.BUCKET_ACL_PRIVATE)
```

For more information about how to obtain an AccessKey ID and AccessKey secret, see Obtain an AccessKey pair.

For more information about how to obtain an endpoint, see Obtain an endpoint.

Upload objects

The following code provides an example on how to upload objects to OSS by using stream upload:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# <yourObjectName> indicates the complete path of the object you want to upload to OSS, and
must include the extension of the object name. Example: abc/efg/123.jpg.
# <yourLocalFile> consists of a local file path and an object name with extension. Example:
/users/local/myfile.txt.
bucket.put_object_from_file('<yourObjectName>', '<yourLocalFile>')
```

Download objects

The following code provides an example on how to download a specified object to a local directory:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# <yourObjectName> indicates the complete path of the object you want to download from OSS,
and must include the extension of the object name. Example: abc/efg/123.jpg.
# <yourLocalFile> consists of a local file path and an object name with extension. Example:
/users/local/myfile.txt.
bucket.get_object_to_file('<yourObjectName>', '<yourLocalFile>')
```

List objects

The following code provides an example on how to list 10 objects in a specified bucket:

```
# -*- coding: utf-8 -*-
import oss2
from itertools import islice
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# oss2.ObjectIteratorr is used to traverse objects.
for b in islice(oss2.ObjectIterator(bucket), 10):
    print(b.key)
```

Delete objects

The following code provides an example on how to delete an object:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# <yourObjectName> indicates the complete path of the object you want to delete from OSS, a
nd must include the extension of the object name. Example: abc/efg/123.jpg.
bucket.delete_object('<yourObjectName>')
```

6.1.2.2.4. Initialization

This topic describes how to initialize OSS SDK for Python.

Most operations of OSS SDK for Python are performed based on oss2.Service and oss2.Bucket.

- oss2.Service is used to list buckets.
- oss2.Bucket is used to upload, download, and delete objects as well as configure buckets.

You need to specify the endpoint when you initialize the two classes. oss2.Service does not support access from custom domain names. For more information about endpoints, see Obtain an endpoint.

Initialize oss2.Service

For more information, see List buckets.

Initialize oss2.Bucket

- Use OSS domain names to initialize oss2.Bucket

  The following code provides an example on how to initialize oss2.Bucket by uisng an OSS domain name:

  ```
  # -*- coding: utf-8 -*-
  import oss2
  auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
  # The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
  endpoint.
  endpoint = 'https://oss-cn-hangzhou.aliyuncs.com'
  bucket = oss2.Bucket(auth, endpoint, '<yourBucketName>')
  ```

- Configure the connection timeout period

  The following code provides an example on how to configure the connection timeout period:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
endpoint = 'https://oss-cn-hangzhou.aliyuncs.com'
# Set the timeout period to 30 seconds.
bucket = oss2.Bucket(auth, endpoint, '<yourBucketName>', connect_timeout=30)
```

- Disable CRC

  By default, CRC is enabled to ensure data integrity when you upload or download objects. The following code provides an example on how to disable CRC:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
endpoint = 'https://oss-cn-hangzhou.aliyuncs.com'
bucket = oss2.Bucket(auth, endpoint, '<yourBucketName>', enable_crc=False)
```

  Warning We recommend that you do not disable CRC. If you disable CRC, data integrity during upload and download may be affected.

6.1.2.2.5. Buckets

6.1.2.2.5.1. Create buckets

A bucket is a container used to store objects in Object Storage Service (OSS). Each object is contained in a bucket. This topic describes how to create a bucket.

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# After you specify the endpoint and bucket name, you can create a bucket in the specified
region. The endpoint of the China (Hangzhou) region is used in this example. Specify the ac
tual endpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Create the bucket. By default, the ACL of the created bucket is private.
bucket.create_bucket()
```

6.1.2.2.5.2. List buckets

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
service = oss2.Service(auth, 'http://oss-cn-hangzhou.aliyuncs.com')
print([b.name for b in oss2.BucketIterator(service)])
```

6.1.2.2.5.3. Determine whether buckets exist

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to determine whether a bucket exists.

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
def does_bucket_exist(bucket):
    try:
        bucket.get_bucket_info()
    except oss2.exceptions.NoSuchBucket:
        return False
    except:
        raise
    return True
exist = does_bucket_exist(bucket)
# If the returned value is true, a bucket with the specified name exists. If the returned v
alue is false, a bucket with the specified name does not exist.
if exist:
    print('bucket exist')
else:
    print('bucket not exist')
```

6.1.2.2.5.4. Manage bucket ACLs

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to configure and query the access control list (ACL) of a bucket.

Configure ACL for a bucket

The following table describes the bucket ACLs.

ACL	Description	Value
Private	Only the owner or authorized users of the bucket can read and write the object.	oss2.BUCKET_ACL_PRIVATE

ACL	Description	Value
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	oss2.BUCKET_ACL_PUBLIC_READ
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	oss2.BUCKET_ACL_PUBLIC_READ_WRITE

The following code provides an example on how to configure the ACL of a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set the ACL of the bucket to private.
bucket.put_bucket_acl(oss2.BUCKET_ACL_PRIVATE)
```

Query the ACL of a bucket

The following code provides an example on how to query the ACL of a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
print(bucket.get_bucket_acl().acl)
```

6.1.2.2.5.5. Delete buckets

Before you delete a bucket, ensure that all objects, LiveChannels, and parts that are generated during multipart upload in the bucket are deleted. The following code provides an example on how to delete buckets:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
try:
    # Delete the bucket.
    bucket.delete_bucket()
except oss2.exceptions.BucketNotEmpty:
    print('bucket is not empty.')
except oss2.exceptions.NoSuchBucket:
    print('bucket does not exist')
```

To delete a bucket that is not empty, you must clear the bucket by listing and deleting objects in the bucket. If a multipart upload task is ongoing, you must terminate the task before you can delete the bucket.

6.1.2.2.5.6. Manage lifecycle rules

Object Storage Service (OSS) allows you to configure lifecycle rules to delete expired objects and parts or convert the storage class of expired objects to Infrequent Access (IA) or Archive to reduce your storage costs. This topic describes how to manage lifecycle rules for buckets.

Background

Each lifecycle rule contains the following information:

- Policy: specifies the mode to match objects and parts.
  - Match by prefix: matches objects and parts by prefix. You can create multiple rules to configure different prefixes. Each prefix must be unique.
  - Match by bucket: matches all objects and parts contained in the bucket. You can create only one rule if you select this method.
- Object lifecycle policy: specifies the validity period or expiration data and the operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired objects are deleted.
  - Expiration date: specifies a date. Objects that are last modified before this date expire and are deleted.
- Part lifecycle policy: specifies the validity period or expiration time and the delete operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired parts are deleted.
  - Expiration date: specifies a date. Parts that are last modified before this date expire and are deleted.

Lifecycle rules also apply to the parts uploaded by using uploadPart. In this case, the last modified time of an object is the time the multipart upload task is initiated.

Configure lifecycle rules

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import LifecycleExpiration, LifecycleRule, BucketLifecycle,AbortMultipartU
pload
import datetime
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Specify that objects expire three days after they are last modified.
rule1 = LifecycleRule('rule1', 'tests/',
                      status=LifecycleRule.ENABLED,
                      expiration=LifecycleExpiration(days=3))
# Specify an expiration date. Objects that are last modified before this date expired.
rule2 = LifecycleRule('rule2', 'logging-',
                      status=LifecycleRule.DISABLED,
expiration=LifecycleExpiration(created_before_date=datetime.date(2018, 12, 12)))
# Specify that parts expire three days after they are last modified.
rule3 = LifecycleRule('rule3', 'tests1/',
                      status=LifecycleRule.ENABLED,
            abort_multipart_upload=AbortMultipartUpload(days=3))
# Specify an expiration data. Parts that are last modified before this date expired.
rule4 = LifecycleRule('rule4', 'logging1-',
                      status=LifecycleRule.DISABLED,
                      abort_multipart_upload = AbortMultipartUpload(created_before_date=dat
etime.date(2018, 12, 12)))
lifecycle = BucketLifecycle([rule1, rule2,rule3,rule4])
bucket.put_bucket_lifecycle(lifecycle)
```

View lifecycle rules

The following code provides an example on how to query the lifecycle rules configured for the bucket named examplebucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
lifecycle = bucket.get_bucket_lifecycle()
for rule in lifecycle.rules:
    if rule.abort_multipart_upload is None:
        print('id={0}, prefix={1}, status={2}, days={3}, created_before_date={4}'
              .format(rule.id, rule.prefix, rule.status,
                      rule.expiration.days,
                      rule.expiration.created_before_date))
    else:
        print('id={0}, prefix={1}, status={2}, days={3}, created_before_date={4}'
              .format(rule.id, rule.prefix, rule.status,
                      rule.abort_multipart_upload.days,
                      rule.abort_multipart_upload.created_before_date))
```

Delete lifecycle rules

The following code provides an example on how to delete lifecycle rules configured for the bucket named examplebucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.delete_bucket_lifecycle()
# An exception occurs when you view lifecycle rules again.
try:
    lifecycle = bucket.get_bucket_lifecycle()
except oss2.exceptions.NoSuchLifecycle:
    print('lifecycle is not configured')
```

6.1.2.2.5.7. Static website hosting

This topic describes how to set the static website hosting mode for your bucket. After the configurations take effect, you can use the bucket domain name to access this static website and be redirected to a specified index page or error page.

Configure static website hosting

Run the following code to configure static website hosting:

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import BucketWebsite
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Enable static website hosting for the bucket. Set the index page to index.html and the er
ror page to error.html.
bucket.put_bucket_website(BucketWebsite('index.html', 'error.html'))
```

View static website hosting configurations

Run the following code to view static website hosting configurations:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
try:
    # If static website hosting is disabled, the system returns NoSuchWebsite when get_buck
et_website is used.
    website = bucket.get_bucket_website()
    print('Index file is {0}, error file is {1}'.format(website.index_file, website.error_f
ile))
except oss2.exceptions.NoSuchWebsite as e:
    print('Website is not configured, request_id={0}'.format(e.request_id))
```

Delete static website hosting configurations

Run the following code to delete static website hosting configurations:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.delete_bucket_website()
```

6.1.2.2.5.8. Configure CORS

Cross-origin resource sharing (CORS) allows web applications to access resources that belong to different regions. OSS provides CORS operations to facilitate cross-origin access control.

Configure CORS rules

Run the following code to configure CORS rules for the specified bucket:

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import BucketCors, CorsRule
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
rule = CorsRule(allowed_origins=['*'],
                allowed_methods=['GET', 'HEAD'],
                allowed_headers=['*'],
                max_age_seconds=1000)
# The existing rules are replaced.
bucket.put_bucket_cors(BucketCors([rule]))
```

Query CORS rules

Run the following code to obtain CORS rules:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
try:
    cors = bucket.get_bucket_cors()
except oss2.exceptions.NoSuchCors:
    print('cors is not set')
else:
    for rule in cors.rules:
        print('AllowedOrigins={0}'.format(rule.allowed_origins))
        print('AllowedMethods={0}'.format(rule.allowed_methods))
        print('AllowedHeaders={0}'.format(rule.allowed_headers))
        print('ExposeHeaders={0}'.format(rule.expose_headers))
        print('MaxAgeSeconds={0}'.format(rule.max_age_seconds))
```

Delete CORS rules

Run the following code to delete all CORS rules for the specified bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.delete_bucket_cors()
```

6.1.2.2.5.9. Configure hotlink protection

OSS provides hotlink protection to prevent unauthorized domain names from accessing your OSS data. You can configure the Referer field in the HTTP header.

To configure hotlink protection, you must configure the following parameters:

- Referer Whitelist: Only specified domain names are allowed to access OSS resources.
- Allow Empty Referer: If you do not allow empty Refer fields, a request is allowed to access OSS resources only if the request includes the Referer field configured in the HTTP or HTTPS header.

Configure hotlink protection

Run the following code to configure the referer whitelist:

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import BucketReferer
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set Allow Empty Referer to True. True indicates that an empty Referer field is allowed an
d False indicates that an empty Referer field is not allowed. Configure the Referer whiteli
st.
bucket.put_bucket_referer(BucketReferer(True, ['http://aliyun.com', 'http://*.aliyuncs.com'
]))
```

Query hotlink protection configurations

Run the following code to obtain a referer whiltelist:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
config = bucket.get_bucket_referer()
print('allow empty referer={0}, referers={1}'.format(config.allow_empty_referer, config.ref
erers))
```

Delete hotlink protection configurations

The following code provides an example on how to delete hotlink protection configurations of a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# You cannot delete a Referer whitelist directly. To delete a Referer whitelist, you must c
reate a rule that allows an empty Referer field to replace the existing rule.
bucket.put_bucket_referer(BucketReferer(True, []))
```

6.1.2.2.5.10. Configure logging

You can enable logging to record access to a bucket in log objects, which are stored in a specified bucket.

The log objects are in the following format: `<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString`.

Enable logging

Run the following code to enable bucket access logging:

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import BucketLogging
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Enable logging. Save the log objects to the current bucket. Set the folder that stores th
e log files to `logging/`.
logging = bucket.put_bucket_logging(BucketLogging(bucket.bucket_name, 'logging/'))
if logging.status == 200:
    print("Enable access logging")
else:
    print("request_id : ", logging.request_id)
    print("resp : ", logging.resp.response)
```

View logging configurations

Run the following code to view the access logging configurations for a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
logging = bucket.get_bucket_logging()
print('TargetBucket={0}, TargetPrefix={1}'.format(logging.target_bucket, logging.target_pre
fix))
```

Disable logging

Run the following code to disable access logging for a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
logging = bucket.delete_bucket_logging()
if logging.status == 204:
    print("Disable access logging")
else:
    print("request_id : ", logging.request_id)
    print("resp : ", logging.resp.response)
```

6.1.2.2.6. Upload objects

6.1.2.2.6.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for Python provides a variety of methods to upload objects.

OSS SDK for Python supports the following object upload methods:

- Simple upload: uploads an object up to 5 GB in size.
- Append upload: uploads an object up to 5 GB in size.
- Resumable upload: supports concurrent upload and resumable upload in which you can define the size of each part. This method is suitable for the upload of large objects. You can use this method to upload an object up to 48.8 TB in size.
- Multipart upload: uploads an object up to 48.8 TB in size. This method is suitable for the upload of large objects.

During object upload, you can configure object metadata and view upload progress by using a progress bar. For more information, see Use progress bars. After the object is uploaded, you can perform upload callback. For more information, see Upload callback.

6.1.2.2.6.2. Simple upload

You can use simple upload to upload objects of the following types: strings, bytes, Unicode, network streams, and local files.

You can use the bucket.put_object method to upload an object. The following table describes the types of inputs supported by this method.

Type	Upload method
Strings	Upload directly.
Bytes	Upload directly.
Unicode	Convert to bytes encoded in UTF-8 to upload.
Local files	File object. The file object must be opened in binary mode such as the rb mode.
Network streams	Iterable object. The iterable object is uploaded by using chunked encoding.

Note If you upload an object with the same name as that of an accessible existing object, the existing object is overwritten by the uploaded object and a 200 OK is returned.

Upload strings

The following code provides an example on how to upload a string to the exampleobject.txt object in the exampledir directory of the examplebucket bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Obtain the return result.
result = bucket.put_object('<yourObjectName>', 'content of object')
# Obtain the returned HTTP status code.
print('http status: {0}'.format(result.status))
# Obtain the unique request ID. We recommend that you add this parameter to the program log
s.
print('request_id: {0}'.format(result.request_id))
# Obtain the ETag value returned by the put_object method.
print('ETag: {0}'.format(result.etag))
# Obtain the HTTP response headers.
print('date: {0}'.format(result.headers['date']))
```

Upload bytes

The following code provides an example on how to upload bytes:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.put_object('<yourObjectName>', b'content of object')
```

Upload Unicode characters

The following code provides an example on how to upload Unicode:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.put_object('<yourObjectName>', u'content of object')
```

Upload local files

The following code provides an example on how to upload a local file to OSS:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# The object must be opened in binary mode because the number of bytes in the object must b
e available before the upload.
with open('<yourLocalFile>', 'rb') as fileobj:
    # Use the seek method to read data from the specified position of the 1000th byte. The
data is uploaded from the specified 1000th byte until the entire object is uploaded.
    fileobj.seek(1000, os.SEEK_SET)
    # Use the tell method to obtain the current position.
    current = fileobj.tell()
    bucket.put_object('<yourObjectName>', fileobj)
```

OSS SDK for Python also provides a more convenient method to upload local files:

```
bucket.put_object_from_file('<yourObjectName>', '<yourLocalFile>')
```

Upload network streams

The following code provides an example on how to upload a network stream:

```
# -*- coding: utf-8 -*-
import oss2
import requests
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# The requests.get method returns an iterable object. In this case, OSS SDK for Python uplo
ads the object by using chunked encoding.
input = requests.get('http://www.aliyun.com')
bucket.put_object('<yourObjectName>', input)
```

6.1.2.2.6.3. Append upload

OSS allows you to use append upload to append content directly to the end of an object. You can apply this method only to append objects.

Run the following code for append upload:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set the position for the first upload (the Position parameter) to 0.
result = bucket.append_object('<yourObjectName>', 0, 'content of first append')
# If you have appended content to the object, you can obtain the position from which the op
eration starts this time from the next_position field in the response returned by the last
operation or by using the bucket.head_object method.
bucket.append_object('<yourObjectName>', result.next_position, 'content of second append')
```

If the object already exists, exceptions occur in the following two cases:

- If the object is not appendable, ObjectNotAppendable is returned.
- If the object is appendable but the append position does not match the current object size, PositionNotEqualToLength is returned.

6.1.2.2.6.4. Resumable upload

If the system stops responding during multipart upload, you can resume the upload by using the ListMultipartUploads and ListParts operations to retrieve all multipart upload tasks on an object and list the uploaded parts in each task. This method allows an upload task to be resumed from the last uploaded part.

You can use the oss2.resumable_upload method to perform resumable upload for a specified object. The following table describes the parameters you can configure for the oss2.resumable_upload method.

Parameter	Description	Required	Default value
bucket	The name of the bucket.	Yes	None
key	The name of the object.	Yes	None
filename	The local file path from which to upload the object.	Yes	None
store	The directory where the checkpoint information is stored.	No	The *.py-oss-upload* directory created in the HOME directory.
headers	The HTTP headers.	No	None
multipart_threshold	The object length threshold for multipart upload. If the object length exceeds the threshold, multipart upload is used.	No	10 MB
part_size	The size of the part.	No	Automatically calculated
progress_callback	The callback function to return upload progress.	No	None
num_threads	The number of concurrent upload threads.	No	1

The following code provides an example on how to perform resumable upload:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Use multipart upload when the object length is greater than or equal to the multipart_thr
eshold value. The multipart_threshold parameter is optional, and the default value of multi
part_threshold is 10 MB. If you do not specify a directory by using the store parameter, th
e .py-oss-upload directory is created in the HOME directory to store the checkpoint informa
tion.
oss2.resumable_upload(bucket, '<yourObjectName>', '<yourLocalFile>')
```

OSS SDK for Python version 2.1.0 and later support resumable upload by using optional parameters. The following code provides an example on how to use optional parameter in resumable upload:

```
# If you specify a directory by using the store parameter, the checkpoint information is st
ored in the specified directory. If you use num_threads to specify the number of concurrent
upload threads, ensure that oss2.defaults.connection_pool_size is set to a value greater th
an the number of concurrent upload threads. The default number of concurrent upload threads
is 1.
oss2.resumable_upload(bucket, '<yourObjectName>', '<yourLocalFile>',
    store=oss2.ResumableStore(root='/tmp'),
    multipart_threshold=100*1024,
    part_size=100*1024,
    num_threads=4)
```

Note

- Multiple threads are used in resumable upload. Therefore, you do not need to encapsulate multiple upload threads when you call the resumable upload method. Otherwise, data may be transferred repeatedly.
- We recommend that you increase the part size when network conditions are good, and decrease the part size when network conditions are poor.

6.1.2.2.6.5. Multipart upload

OSS allows you to use multipart upload to split an object into several parts and upload them separately. After all parts are uploaded, you can combine the uploaded parts into a complete object to complete the upload.

To implement multipart upload, perform the following operations:

1. Initiate a multipart upload task.

   Call the ossClient.initiateMultipartUpload method to obtain a unique upload ID in OSS.

2. Upload the parts.

   Call the ossClient.uploadPart method to upload the parts.

   Note

   - Part numbers identify the relative positions of parts in an object that share the same upload ID. If you have uploaded a part and used its part number again to upload another part, the latter part overwrites the former part.
   - OSS includes the MD5 hash of part data in the ETag header and returns the MD5 hash to the user.
   - OSS calculates the MD5 hash of uploaded data and compares it with the MD5 hash calculated by the SDK. If the two hashes are different, the InvalidDigest error code is returned.

3. Complete the multipart upload task.

   After all parts are uploaded, call the ossClient.completeMultipartUpload method to combine these parts into a complete object.

The following code provides an example on how to perform multipart upload:

```
# -*- coding: utf-8 -*-
import os
from oss2 import SizedFileAdapter, determine_part_size
from oss2.models import PartInfo
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
key = '<yourObjectName>'
filename = '<yourLocalFile>'
total_size = os.path.getsize(filename)
# Use the determine_part_size method to determine the part size.
part_size = determine_part_size(total_size, preferred_size=100 * 1024)
# Initiate a multipart upload task.
# To set the storage class for the object when you initiate the multipart upload task, set
the headers parameter in the init_multipart_upload function.
# headers = dict()
# headers["x-oss-storage-class"] = "Standard"
# upload_id = bucket.init_multipart_upload(key, headers=headers).upload_id
upload_id = bucket.init_multipart_upload(key).upload_id
parts = []
# Upload the parts one by one.
with open(filename, 'rb') as fileobj:
    part_number = 1
    offset = 0
    while offset < total_size:
        num_to_upload = min(part_size, total_size - offset)
        # The SizedFileAdapter(fileobj, size) method generates a new object, and resets the
append position.
        result = bucket.upload_part(key, upload_id, part_number,
                                    SizedFileAdapter(fileobj, num_to_upload))
        parts.append(PartInfo(part_number, result.etag))
        offset += num_to_upload
        part_number += 1
# Complete the multipart upload task.
# To configure ACL for the object when you complete the multipart upload task, set the head
ers parameter in the complete_multipart_upload function.
# headers = dict()
# headers["x-oss-object-acl"] = oss2.OBJECT_ACL_PRIVATE
# bucket.complete_multipart_upload(key, upload_id, parts, headers=headers)
bucket.complete_multipart_upload(key, upload_id, parts)
# Verify multipart upload.
with open(filename, 'rb') as fileobj:
    assert bucket.get_object(key).read() == fileobj.read()
```

Cancel a multipart upload task

You can call bucket.abort_multipart_upload to cancel a multipart upload task. If you cancel a multipart upload task, you cannot use the upload ID to perform any operations on the parts. The uploaded parts are deleted.

The following code provides an example on how to cancel a multipart upload task:

```
# -*- coding: utf-8 -*-
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
key = '<yourObjectName>'
# Obtain the upload ID returned by the init_multipart_upload operation.
upload_id = '<yourUploadId>'
# When you cancel the multipart upload task by using the specified upload ID, the uploaded
parts are deleted.
bucket.abort_multipart_upload(key, upload_id)
```

List uploaded parts

The following code provides an example on how to list uploaded parts:

```
# -*- coding: utf-8 -*-
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
key = '<yourObjectName>'
# Obtain the upload ID returned by the init_multipart_upload operation.
upload_id = '<yourUploadId>'
# List uploaded parts by using the specified upload ID.
for part_info in oss2.PartIterator(bucket, key, upload_id):
    print('part_number:', part_info.part_number)
    print('etag:', part_info.etag)
    print('size:', part_info.size)
```

List multipart upload tasks

- List multipart upload tasks of a specified object

  The following code provides an example on how to list multipart upload tasks of a specified object:

```
# -*- coding: utf-8 -*-
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
key = '<yourObjectName>'
# List all multipart upload tasks of the object. Each time init_multipart_upload is calle
d for the same object, different upload_id values are returned.
# One upload ID corresponds to one multipart upload task.
for upload_info in oss2.ObjectUploadIterator(bucket, key):
    print('key:', upload_info.key)
    print('upload_id:', upload_info.upload_id)
```

- List all multipart upload tasks in a bucket

  The following code provides an example on how to list all multipart upload tasks in a bucket:

```
# -*- coding: utf-8 -*-
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# List all multipart upload tasks in the bucket.
for upload_info in oss2.MultipartUploadIterator(bucket):
    print('key:', upload_info.key)
    print('upload_id:', upload_info.upload_id)
```

- List all multipart upload tasks for objects whose names contain a specified prefix in a bucket

  The following code provides an example on how to list multipart upload tasks for objects whose names contain a specified prefix in a bucket:

```
# -*- coding: utf-8 -*-
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# List multipart upload tasks for objects whose names contain the prefix test in the buck
et.
for upload_info in oss2.MultipartUploadIterator(bucket, prefix='test'):
    print('key:', upload_info.key)
    print('upload_id:', upload_info.upload_id)
```

6.1.2.2.6.6. Use progress bars

Progress bars are used to indicate the progress of an upload or download.

For the complete code of progress bar, visit GitHub.

The following code uses bucket.put_object as an example to describe how to use a progress bars:

```
# -*- coding: utf-8 -*-
from __future__ import print_function
import os, sys
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# If the length of the data to upload cannot be determined, the value of total_bytes is Non
e.
def percentage(consumed_bytes, total_bytes):
    if total_bytes:
        rate = int(100 * (float(consumed_bytes) / float(total_bytes)))
        print('\r{0}% '.format(rate), end='')
        sys.stdout.flush()
# progress_callback is an optional parameter used to return progress information.
bucket.put_object('<yourObjectName>', 'a'*1024*1024, progress_callback=percentage)
```

6.1.2.2.6.7. Upload callback

This topic describes how to use upload callback.

For the complete code used to implement upload callback, visit GitHub.

You can use upload callback when you use put_object, put_object_from_file, and complete_multipart_upload.

```
# -*- coding: utf-8 -*-
import json
import base64
import os
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Configure the upload callback parameter.
callback_dict = {}
# Configure the IP address of the server to which you want to send the callback request. Ex
ample: http://oss-demo.aliyuncs.com:23450 or http://127.0.0.1:9090.
callback_dict['callbackUrl'] = 'http://oss-demo.aliyuncs.com:23450'
# Optional. Configure the value of the host field carried in the callback request header.
# callback_dict['callbackHost'] = 'yourCallbackHost'
# Configure the value of the body field included in the callback request.
callback_dict['callbackBody'] = 'filename=${object}&size=${size}&mimeType=${mimeType}'
# Configure Content-Type for the callback request.
callback_dict['callbackBodyType'] = 'application/x-www-form-urlencoded'
# The callback parameter is in the JSON format and encoded in Base64.
callback_param = json.dumps(callback_dict).strip()
base64_callback_body = base64.b64encode(callback_param)
# Configure the header with the encoded parameter and send the header to OSS.
headers = {'x-oss-callback': base64_callback_body}
# Upload the object and perform upload callback.
result = bucket.put_object('<yourObjectName>', 'a'*1024*1024, headers)
```

6.1.2.2.7. Download objects

6.1.2.2.7.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for Python provides the following object download methods:

You can use one of the following methods to download an object:

- Streaming download
- Download to local files
- Range download
- Resumable download

You can view the download progress by using a progress bar. For more information, see Use progress bars.

6.1.2.2.7.2. Streaming download

If you need to download a large object or it takes a long time to download an object at a time, you can use streaming download to download the object incrementally until the entire object is downloaded.

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# The return value of bucket.get_object is a file-like and iterable object.
object_stream = bucket.get_object('<yourObjectName>')
print(object_stream.read())
# You must call read() to read the object from the stream returned by get_object before you
can calculate the CRC-64 checksum of the object.
if object_stream.client_crc ! = object_stream.server_crc:
    print "The CRC checksum between client and server is inconsistent!"
```

The following code provides an example on how to download data to a local file in streaming mode:

```
import shutil
# object_stream is a file-like object. You can use the shutil.copyfileobj method to downloa
d the data to your local file.
object_stream = bucket.get_object('<yourObjectName>')
with open('<yourLocalFile>', 'wb') as local_fileobj:
    shutil.copyfileobj(object_stream, local_fileobj)
```

The following code provides an example on how to copy data to another object in streaming mode:

```
# object_stream is a iterable object. You can copy object_stream to another object in strea
ming mode.
object_stream = bucket.get_object('<yourObjectName>')
bucket.put_object('<yourBackupObjectName>', object_stream)
```

6.1.2.2.7.3. Download to local files

This topic describes how to download an object to a local file.

The following code provides an example on how to download a specified object to a local file:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Download the object to a local file. If the specified local file already exists, the down
loaded object replaces the local file. If the specified local file does not exist, it is cr
eated.
# <yourLocalFile> consists of a local file path and an object name with an extension. Examp
le: /users/local/myfile.txt.
bucket.get_object_to_file('<yourObjectName>', '<yourLocalFile>')
```

6.1.2.2.7.4. Range download

If you need only part of the data in an object, you can use range download to download data within the specified range.

Specify a valid range

The following code provides an example on how to specify a valid range to download data:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# If an object is 1,000 bytes in size, the valid range is from byte 0 to byte 999.
# Query the data that is within the range from byte 0 to byte 999, which includes a total o
f 1,000 bytes. If the specified range is invalid, for example, the specified range includes
a negative number, or the specified value is larger than the object size, the entire object
is downloaded.
object_stream = bucket.get_object('<yourObjectName>', byte_range=(0, 999))
```

Specify an invalid range

The valid range for an object whose size is 1,000 bytes is from byte 0 to byte 999. If the specified range is not within the range, the range does not take effect. Then, OSS returns the 200 HTTP status code and the data of the entire object. The following list provides examples of invalid requests and the returned results:

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.
- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.

Compatible download

If you add x-oss-range-behavior:standard to the request header, the download behavior is modified when the specified range is not within the valid range. Example: Use range download to download an object whose size is 1,000 bytes.

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns HTTP status code 206 and the data that is within the range from byte 500 to byte 999.
- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns HTTP status code 416 and error code InvalidRange.

The following code provides an example on how to specify compatible behaviors to download data by range:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Create an object whose size is 1,000 bytes.
object_name = 'rangeTest.txt'
content = 'a' * 1000
bucket.put_object(object_name, content)
headers = {'x-oss-range-behavior':'standard'}
# Specify the compatible behavior.
# When the value at the end of the range is invalid, OSS returns the data that is within th
e range from byte 500 to byte 999. The 206 HTTP status code is also returned.
object_stream = bucket.get_object(object_name, byte_range=(500, 2000), headers=headers)
print('standard get 500~2000 http status code:', object_stream.status)
print('standard get 500~2000 contnet_length:', object_stream.content_length)
try:
    # When the value at the start of the range is invalid, exceptions are returned for the
following code. The returned HTTP status code is 416 and the returned error code is Invalid
Range.
    object_stream = bucket.get_object(object_name, byte_range=(1000, 2000), headers=headers
)
except oss2.exceptions.ServerError as e:
    print('standard get 1000~2000 http status code:', e.status)
    print('standard get 1000~2000 error code:', e.code)
```

6.1.2.2.7.5. Resumable download

You may fail to download a large object if the network is unstable or if the program stops responding. In some cases, you may still fail to download the object even after multiple attempts. To solve this problem, OSS SDK for Java provides the resumable download feature.

You can perform the following steps to perform resumable download:

1. Create a temporary local file with a name that consists of the original object name and a random suffix.
2. Read the object based on the range specified in the Range header in the HTTP request and write the read content to the corresponding position of the temporary local file.
3. After the download is complete, rename the temporary file as the destination file. If the destination file already exists, the downloaded data overwrites the data in the existing file.

Otherwise, a new file is created.

You can use the oss2.resumable_download method to perform resumable download. The following table describes the parameters used in this method.

Parameter	Description	Required	Default value
bucket	The name of the bucket.	Yes	None
key	The name of the object.	Yes	None
filename	The path to the local file. The local file to which the object is downloaded.	Yes	None
store	The file that records the results of multipart download. This file stores information about download progress. If you fail to download a part, the download continues based on the recorded progress.	No	The *.py-oss-upload* directory created in the HOME directory.
multipart_threshold	The threshold for the object size. If the object size exceeds the threshold, resumable download is enabled.	No	10 MB
part_size	The size of the part.	No	Automatically calculated.
progress_callback	The callback function used to return download progress information.	No	None
num_threads	The number of threads for simultaneous downloads.	No	1

Run the following code for resumable download:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
oss2.resumable_download(bucket, '<yourObjectName>', '<yourLocalFile>')
```

You can configure optional parameters for resumable upload when you use OSS SDK for Python V2.1.0 or later version. The following code provides you an example:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set oss2.defaults.connection_pool_size to a value greater than or equal to the number of
threads. Then set part_size to a value greater than or equal to the oss2.defaults.multiget_
part_size value.
oss2.resumable_download(bucket, '<yourObjectName>', '<yourLocalFile>',
  store=oss2.ResumableDownloadStore(root='/tmp'),
  multiget_threshold=20*1024*1024,
  part_size=10*1024*1024,
  num_threads=3)
```

Note Do not use multiple programs or threads to call the method simultaneously to download the same object to a same destination file. This is because one piece of checkpoint information overwrites another on the local disk, or one temporary file name conflicts with another.

6.1.2.2.7.6. Use progress bars

Progress bars are used to indicate the progress of an upload or download.

For the complete code of progress bar, visit GitHub.

The following code provides an example on how to use a progress bar in object download performed by using the bucket.get_object_to_file method:

```
# -*- coding: utf-8 -*-
from __future__ import print_function
import os, sys
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# If Content-Length is not configured in the HTTP response header, the value of total_bytes
is None.
def percentage(consumed_bytes, total_bytes):
    if total_bytes:
        rate = int(100 * (float(consumed_bytes) / float(total_bytes)))
        print('\r{0}% '.format(rate), end='')
        sys.stdout.flush()
# progress_callback is an optional parameter used to implement a progress bar.
bucket.get_object_to_file('<yourObjectName>', '<yourLocalFile>', progress_callback=percenta
ge)
```

6.1.2.2.8. Manage objects

6.1.2.2.8.1. Overview

You can manage objects in a bucket by using a variety of operations such as SetObjectAcl, GetObjectAcl, ListObjects, DeleteObject, and CopyObject.

By using the preceding operations, you can perform the following operations:

- Determine whether an object exists
- Manage object ACLs
- Manage object metadata
- List objects
- Query objects
- Delete objects
- Copy an object

6.1.2.2.8.2. Determine whether an object exists

This topic describes how to determine whether an object exists.

Run the following code to determine whether a specified object exists:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
exist = bucket.object_exists('<yourObjectName>')
# If the returned value is true, the specified object exists. If the returned value is fals
e, the specified object does not exist.
if exist:
    print('object exist')
else:
    print('object not exist')
```

6.1.2.2.8.3. Manage object ACLs

This topic describes how to manage the access control list (ACL) of an object.

The following table describes the ACLs that can be configured for an object.

ACL	Description	Value
Inherited from the bucket	The ACL of an object is the same as that of the bucket to which the object belongs.	oss2.OBJECT_ACL_DEFAULT
Private	Only the bucket owner and authorized users have the read and write permissions on the object.	oss2.OBJECT_ACL_PRIVATE
Public Read	Only the bucket owner and authorized users have read and write permissions on the object. Other users have only read permissions on the object. Exercise caution when you use this ACL.	oss2.OBJECT_ACL_PUBLIC_READ
Public	All users have read and write permissions on the object. Exercise caution when you use this ACL.	oss2.OBJECT_ACL_PUBLIC_READ_WRITE

The ACL of objects take precedence over that of buckets. For example, if the ACL of a bucket is private, while the object ACL is public read-write, all users can read and write the object. If an object is not configured with an ACL, its ACL is the same as that of its bucket by default.

Configure ACL for an object

You can run the following code to configure an ACL for an object:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Configure ACL for the object.
bucket.put_object_acl('<yourObjectName>', oss2.OBJECT_ACL_PUBLIC_READ)
```

Query the ACL of an object

You can run the following code to obtain the ACL for an object:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
print(bucket.get_object_acl('<yourObjectName>').acl)
```

6.1.2.2.8.4. Manage object metadata

Object metadata includes HTTP headers and user metadata.

Configure HTTP headers

Run the following code to configure HTTP headers:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.put_object('<yourObjectName>', '{"age": 1}', headers={'Content-Type': 'application/j
son; charset=utf-8'})
```

For more information about HTTP headers, see RFC2616.

Configure user metadata

You can define user-defined Object Meta for object descriptions.

Run the following code to configure user-defined Object Meta:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.put_object('<yourObjectName>', 'a novel', headers={'x-oss-meta-author': 'O. Henry',
'Content-Type': 'application/json; charset=utf-8'})
```

Modify object metadata

Run the following code to modify Object Meta:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
bucket.update_object_meta('<yourObjectName>', {'x-oss-meta-author': 'O. Henry'})
# Each time you call bucket.update_object_meta, the existing user metadata is updated.
bucket.update_object_meta('<yourObjectName>', {'x-oss-meta-price': '100 dollar'})
```

The following code provides an example on how to modify object metadata such as Content-Type:

```
bucket.update_object_meta('<yourObjectName>', {'x-oss-meta-author': 'O. Henry'})
# Each time you call bucket.update_object_meta, the existing user metadata is updated.
bucket.update_object_meta('<yourObjectName>', {'Content-Type': 'text/plain'})
```

Query object metadata

You can use the operations provided by OSS SDK for Python to query object metadata.

Configuration method	Description	Benefits
get_object_meta	Queries parts of the object metadata including the ETag, size, and last modified time of the object.	More lightweight and faster
head_object	Queries all object metadata.	None

Run the following code to obtain Object Meta:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
// Query parts of the object metadata.
simplifiedmeta = bucket.get_object_meta("<yourObjectName>")
print(simplifiedmeta.headers['Last-Modified'])
print(simplifiedmeta.headers['Content-Length'])
print(simplifiedmeta.headers['ETag'])
// Query all object metadata.
objectmeta = bucket.head_object("<yourObjectName>")
print(objectmeta.headers['Content-Type'])
print(objectmeta.headers['Last-Modified'])
print(objectmeta.headers['x-oss-object-type'])
```

6.1.2.2.8.5. List objects

Objects in a bucket are sorted alphabetically. OSS SDK for Python provides a series of object listing methods.

Simple list

The following code provides an example on how to list 10 objects in a specified bucket:

```
# -*- coding: utf-8 -*-
import oss2
from itertools import islice
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
for b in islice(oss2.ObjectIterator(bucket), 10):
    print(b.key)
```

List all objects in a bucket

The following code provides an example on how to list all objects in a bucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# List all objects in the bucket.
for obj in oss2.ObjectIterator(bucket):
    print(obj.key)
```

List objects whose names contain a specified prefix

Example: A bucket contains the following objects: oss.jpg, fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. The forward slash (/) is used as the folder delimiter.

The following code provides an example on how to list all objects whose names contain a specified prefix:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# List all objects in the fun folder, including objects from the subfolders.
for obj in oss2.ObjectIterator(bucket, prefix='fun/'):
    print(obj.key)
```

Example output:

```
fun/movie/001.avi
fun/movie/007.avi
fun/test.jpg
```

List objects and subfolders in a specified folder

OSS does not use folders. All elements are stored as objects. To simulate a folder on the OSS console, you actually create a 0 MB object whose name ends with a forward slash (/). This object can be uploaded and downloaded. By default, the OSS console displays an object whose name ends with a forward slash (/) as a folder.

The delimiter and prefix parameters can be used to simulate folder functions.

- If prefix is set to the name of a folder, objects and subfolders whose names contain the prefix are listed.
- If delimiter is set to a forward slash (/), only the objects and subfolders in the folder are listed. The objects and folders in subfolders are not listed.

Run the following code to list all objects in a specified folder:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# List objects and subfolders in the fun folder. Objects in the subfolders are not listed.
for obj in oss2.ObjectIterator(bucket, prefix = 'fun/', delimiter = '/'):
    # Use is_prefix to determine whether obj is a folder.
    if obj.is_prefix():  # folder
        print('directory: ' + obj.key)
    else:                # object
        print('file: ' + obj.key)
```

Example output:

```
directory: fun/movie/
file: fun/test.jpg
```

List the sizes of objects in a specified folder

The following code provides an example on how to query the sizes of objects in a specified folder:

```
# -*- coding: utf-8 -*-
import oss2
def CalculateFolderLength(bucket, folder):
    length = 0
    for obj in oss2.ObjectIterator(bucket, prefix=folder):
        length += obj.size
    return length
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
for obj in oss2.ObjectIterator(bucket, delimiter='/'):
    if obj.is_prefix():  # folder
        length = CalculateFolderLength(bucket, obj.key)
        print('directory: ' + obj.key + '  length:' + str(length) + "Byte.")
    else: # object
        print('file:' + obj.key + '  length:' + str(obj.size) + "Byte.")
```

6.1.2.2.8.6. Query objects

This topic describes how to use SelectObject in OSS SDK for Python to query CSV and JSON objects.

OSS SDK for Python examples

The following code provides an example on how to query CSV and JSON objects:

```
import oss2
def select_call_back(consumed_bytes, total_bytes =  None):
        print('Consumed Bytes:' + str(consumed_bytes) + '\n')
access_key_id = '<yourAccessKeyId>'
access_key_secret = '<yourAccessKeySecret>'
bucket_name = '<yourtBucketName>'
endpoint = '<yourEndpoint>'
# Create an OSS bucket. All object-related methods must be called based on the bucket.
bucket = oss2.Bucket(oss2.Auth(access_key_id, access_key_secret), endpoint, bucket_name)
key =  'python_select.csv'
content =  'Tom Hanks,USA,45\r\n'*1024
filename =  'python_select.csv'
# Upload a CSV object.
bucket.put_object(key, content)
# Set the parameters for the SelectObject API operation.
csv_meta_params = {'RecordDelimiter': '\r\n'}
select_csv_params = {'CsvHeaderInfo': 'None',
                     'RecordDelimiter': '\r\n',
```

```
                    'LineRange': (500, 1000)}
csv_header = bucket.create_select_object_meta(key, csv_meta_params)
print(csv_header.rows)
print(csv_header.splits)
result = bucket.select_object(key, "select * from ossobject where _3 > 44", select_call_bac
k, select_csv_params)
select_content = result.read()
print(select_content)
result = bucket.select_object_to_file(key, filename,
      "select * from ossobject where _3 > 44", select_call_back, select_csv_params)
bucket.delete_object(key)
###JSON DOCUMENT
key =  'python_select.json'
content =  "{\"contacts\":[{\"key1\":1,\"key2\":\"hello world1\"},{\"key1\":2,\"key2\":\"he
llo world2\"}]}"
filename =  'python_select.json'
# Upload a JSON Document object.
bucket.put_object(key, content)
select_json_params = {'Json_Type': 'DOCUMENT'}
result = bucket.select_object(key, "select s.key2 from ossobject.contacts[*] s where s.key1
= 1", None, select_json_params)
select_content = result.read()
print(select_content)
result = bucket.select_object_to_file(key, filename,
      "select s.key2 from ossobject.contacts[*] s where s.key1 = 1", None, select_json_para
ms)
bucket.delete_object(key)
###JSON LINES
key =  'python_select_lines.json'
content =  "{\"key1\":1,\"key2\":\"hello world1\"}\n{\"key1\":2,\"key2\":\"hello world2\"}"
filename =  'python_select.json'
# Upload a JSON Lines object.
bucket.put_object(key, content)
select_json_params = {'Json_Type': 'LINES'}
json_header = bucket.create_select_object_meta(key,select_json_params)
print(json_header.rows)
print(json_header.splits)
result = bucket.select_object(key, "select s.key2 from ossobject s where s.key1 = 1", None,
select_json_params)
select_content =  result.read()
print(select_content)
result = bucket.select_object_to_file(key, filename,
          "select s.key2 from ossobject s where s.key1 = 1", None, select_json_params)
bucket.delete_object(key)
```

Python Select API

The following section describes the elements used for the SelectObject API operation in Python in detail. These elements include select_object, select_object_to_file, and create_select_object_meta.

- select_object

- The following code provides an example on how to set parameters for select_object:

```
def select_object(self, key, sql,
                  progress_callback=None,
                  select_params=None
                  byte_range=None
                  headers=None
                  ):
```

The preceding code example is used to execute an SQL statement on the object that has the specified key and return the query results.

- sql: the SQL statement that can be directly used as the value of the sql parameter and does not need to be Base64-encoded.
- Progress_callback: optional. This parameter specifies a callback function used to report the query progress.
- select_params: the parameters and actions of the SelectObject operation.
- headers: the header information included in the request. The header information functions the same as that for the GetObject operation. For example, you can configure the bytes field in the request header to specify the range of a CSV object to query.

- The following table describes the parameters supported by the select_params parameter.

Parameter	Description
Json_Type	■ By default, the object is a CSV object if this parameter is not specified. ■ The object is a JSON Document object if this parameter is set to DOCUMENT. ■ The object is a JSON Lines object if this parameter is set to LINES.
CsvHeaderInfo	The header information of the CSV object. Valid values: *None*, *Ignore*, and *Use*. ■ *None*: This object has no header information configured. ■ *Ignore*: This object has header information configured, which is not used when the SQL statement is executed. ■ *Use*: This object has header information configured. The column names in the header information are used when the SQL statement is executed.
CommentCharacter	The comment character in the CSV object. This parameter value can be only one character in length. The default value is None, which indicates that no comment characters are allowed.
RecordDelimiter	The row delimiter in the CSV object. This parameter value can be only one or two characters in length. Default value: \n.
OutputRecordDelimiter	The row delimiter in the output result of the SELECT statement. Default value: \n.

Parameter	Description
FieldDelimiter	The column delimiter in the CSV object. This parameter value can be only one character in length. Default value: comma (,).
OutputFieldDelimiter	The column delimiter in the output result of the SELECT statement. Default value: comma (,).
QuoteCharacter	The quote character for the columns in the CSV object. This parameter value can be only one character in length. Default value: double quotation marks ("). Row and column delimiters enclosed in quote characters are processed as normal characters.
SplitRange	The split range in multipart query. The parameter value is a closed interval in the (start, end) format, which indicates the range of splits to query.
LineRange	The row range in multipart query. The parameter value is a closed interval in the (start, end) format, which indicates the range of rows to query.
CompressionType	The format in which the object is compressed. Valid value: GZIP. Default value: None.
KeepAllColumns	If this parameter is set to true, columns that are excluded by the SELECT statement in the CSV object are left empty in the output result. However, the column positions are kept. Default value: false. Example: The columns in the CSV object are firstname, lastname, and age. The SQL statement is `select firstname, age from ossobject`. ■ If KeepAllColumns is set to *true*, the output result is firstname,,age, in which a comma (,) is added to indicate the position of the excluded lastname column. ■ If KeepAllColumns is set to *false*, the output result is firstname,age. **Note** By using this parameter, you can directly use the code that is used to process GetObject to process SelectObject without modifications.
OutputRawData	■ If this parameter is set to *True*, SelectObject directly returns the original data. If data is not returned for a long time, a timeout error may occur. ■ If this parameter is set to *False*, the output data is encapsulated in frames. Default value: False.
EnablePayloadCrc	Specifies whether a cyclic redundancy check (CRC) value is calculated for each frame. Default value: False.

Parameter	Description
OutputHeader	The header information in the first line of the output result. This parameter applies only to CSV objects.
SkipPartialDataRecord	If this parameter is set to True for a CSV object, the current record is skipped when a column of this record has no data. If this parameter is set to True for a JSON object, the current record is skipped when a key of this record does not exist. If this parameter is set to False, a column without data is left empty in the output result. Example: A row includes the columns firstname, lastname, and age. The SQL statement is `select _1, _4 from ossobject`. ■ If this parameter is set to True, this row is skipped. ■ If this parameter is set to False, firstname,\n is returned.
MaxSkippedRecordsAllowed	The maximum number of skipped rows. The default value is 0, which indicates that an error is returned if a row is skipped.
ParseJsonNumberAsString	■ If this parameter is set to True, all numbers in the JSON object are parsed as strings. ■ If this parameter is set to False, all numbers in the JSON object are parsed as integers or floating-point numbers. Default value: False. High-accuracy floating-point numbers in a JSON object suffer loss of accuracy when they are parsed as floating-point numbers. To keep the accuracy, you can set this parameter to True and use the CAST function to convert the parsed data to the decimal type.

- Returned results of select_object: A SelectObjectResult object is returned. You can use the read() function or the __iter__ method to obtain all results.

  Note If you call the read() function to read all results when there are multiple results to return, excess memory resources are used and you have to wait for a long time. We recommend that you use the __iter__ method (foreach chunk in result) to obtain results and process each chunk in the results. The __iter__ method reduces memory usage and enables the client to process each chunk request processed by the OSS server in a timely manner. This way, the client does not need to wait until all results are returned.

- select_object_to_file

```
def select_object_to_file(self, key, filename, sql,
                  progress_callback=None,
                  select_params=None
                  headers=None
                  ):
```

The preceding code example is used to execute an SQL statement on the object that has the specified key and write the query results to another specified object.

- create_select_object_meta
  - Syntax of create_select_object_meta:

    ```
    def create_select_object_meta(self, key, select_meta_params=None, header=None):
    ```

    The preceding code example is used to create Select Meta for or obtain Select Meta from the object that has the specified key. Select Meta includes the total number of rows, total number of columns (for CSV objects), and total number of splits in an object.

    If Select Meta has been created for an object, this function does not re-create Select Meta unless the value of the OverwriteIfExists parameter is set to true.

    To create Select Meta for an object, the object must be completely scanned.
  - The following table describes the parameters supported by the select_meta_params parameter.

Parameter	Description
Json_Type	■ By default, the object is a CSV object if this parameter is not specified. ■ If this parameter is specified, the parameter value must be LINES, which indicates that the object is a JSON Lines object. **Note** This operation does not apply to JSON Document objects.
RecordDelimiter	The row delimiter in the CSV object.
FieldDelimiter	The column delimiter in the CSV object.
QuoteCharacter	The quote character in the CSV object. Row and column delimiters enclosed in quote characters are processed as normal characters.
CompressionType	The format in which the object is compressed. No compression formats are supported. The default value is None.
OverwriteIfExists	Specifies whether the created Select Meta overwrites the original Select Meta. You do not need to set this parameter in most cases.

  - Returned results of create_select_object_meta: A GetSelectObjectMetaResult object is returned, which includes the rows and splits attributes. If the object is a CSV object, the select_resp object in the result includes the columns attribute, which indicates the number of columns in the CSV object.

6.1.2.2.8.7. Delete objects

This topic describes how to delete objects.

Warning Deleted objects cannot be restored. Exercise caution when you delete objects.

Delete a single object

The following code provides an example on how to delete an object named *exampleobject.txt* from a bucket named examplebucket:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Delete the object. <yourObjectName> indicates the full path of the object that you want t
o delete from OSS. The path must include the extension of the object name. Example: abc/efg
/123.jpg.
# To delete a folder, set <yourObjectName> to the corresponding folder name. If the folder
is not empty, you must delete all objects in the folder before you can delete the folder.
bucket.delete_object('<yourObjectName>')
```

Delete multiple objects

```
# Delete three objects at a time. A maximum of 1,000 objects can be deleted at a time.
result = bucket.batch_delete_objects(['<yourObjectName-a>', '<yourObjectName-b>', '<yourObj
ectName-c>'])
# Display the names of deleted objects.
print('\n'.join(result.deleted_keys))
```

Delete objects whose names contain a specified prefix

The following code provides an example on how to delete objects whose names contain a specified prefix:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
prefix = "<yourKeyPrefix>"
# Delete the objects whose names contain the specified prefix.
for obj in oss2.ObjectIterator(bucket, prefix=prefix):
    bucket.delete_object(obj.key)
```

6.1.2.2.8.8. Copy an object

You can copy an object from a source bucket to a destination bucket within the same region.

Object copy has the following limits:

- You must have read permissions on the source object and write permissions on the destination bucket.
- You cannot copy an object across regions.

Simple copy

You can use simple copy for objects up to 1 GB in size. The following code provides an example on how to perform simple copy:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourDestinationBucketNa
me>')
bucket.copy_object('<yourSourceBucketName>', '<yourSourceObjectName>', '<yourDestinationObj
ectName>')
```

Copy a large object

To copy an object larger than 1 GB, you must split the object into smaller parts and copy them sequentially by using UploadPartCopy. To implement multipart copy, perform the following operations:

1. Use bucket.init_multipart_upload to initiate a multipart copy task.
2. Use bucket.upload_part_copy to copy parts. All parts except for the last part must be greater than 100 KB.
3. Use bucket.complete_multipart_upload to complete the multipart copy task.

```
# -*- coding: utf-8 -*-
import oss2
from oss2.models import PartInfo
from oss2 import determine_part_size
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
src_object = '<yourSourceObjectName>'
dst_object = '<yourDestinationObjectName>'
total_size = bucket.head_object(src_object).content_length
part_size = determine_part_size(total_size, preferred_size=100 * 1024)
# Initiate a multipart upload task.
upload_id = bucket.init_multipart_upload(dst_object).upload_id
parts = []
# Copy each part sequentially.
part_number = 1
offset = 0
while offset < total_size:
    num_to_upload = min(part_size, total_size - offset)
    byte_range = (offset, offset + num_to_upload - 1)
    result = bucket.upload_part_copy(bucket.bucket_name, src_object, byte_range,dst_object,
upload_id, part_number)
    parts.append(PartInfo(part_number, result.etag))
    offset += num_to_upload
    part_number += 1
# Complete the multipart copy task.
bucket.complete_multipart_upload(dst_object, upload_id, parts)
```

6.1.2.2.9. Authorized access

This topic describes how to use Security Token Service (STS) and a signed URL to authorize access.

Use STS to authorize temporary access

Alibaba Cloud STS is a web service that provides a temporary access token to a cloud computing user. You can use STS to grant a third-party application or your RAM user an access credential with a customized validity period and permissions.

STS has the following benefits:

- You need only to generate an access token and send the access token to a third-party application, instead of exposing your long-term AccessKey pair to the third-party application. You can customize the access permissions and validity period of this token.
- The access token automatically expires when the validity period ends.

First, run the following command to install the official Python STS client:

```
pip install aliyun-python-sdk-sts
```

The Python version must be 2.0.6 or later. The following code provides an example on how to use STS to authorize temporary access to upload an object:

```
# -*- coding: utf-8 -*-
from aliyunsdkcore import client
from aliyunsdksts.request.v20150401 import AssumeRoleRequest
import json
import oss2
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
endpoint = 'oss-cn-hangzhou.aliyuncs.com'
access_key_id = '<yourAccessKeyId>'
access_key_secret = '<yourAccessKeySecret>'
bucket_name = '<yourBucketName>'
# The role_arn parameter specifies the resource descriptor of the role.
role_arn = '<yourRoleArn>'
clt = client.AcsClient(access_key_id, access_key_secret, 'cn-hangzhou')
req = AssumeRoleRequest.AssumeRoleRequest()
# Set the format of the returned value to JSON.
req.set_accept_format('json')
req.set_RoleArn(role_arn)
req.set_RoleSessionName('session-name')
body = clt.do_action(req)
# Use the AccessKey pair of the RAM user to apply for a temporary token from STS.
token = json.loads(body)
# Initialize the StsAuth instance based on the authentication information in the temporary
token.
auth = oss2.StsAuth(token['Credentials']['AccessKeyId'],
                    token['Credentials']['AccessKeySecret'],
                    token['Credentials']['SecurityToken'])
# Initialize the bucket based on the StsAuth instance.
bucket = oss2.Bucket(auth, endpoint, bucket_name)
# Upload a string.
bucket.put_object('object-name.txt', b'hello world')
```

For the complete sample code of STS usage, visit GitHub.

Download a private object by using a signed URL

You can generate a signed URL for users to access a private bucket.

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('Your AccessKey ID', 'Your AccessKey secret')
bucket = oss2.Bucket(auth, 'Your endpoint', 'Your bucket name')
print(bucket.sign_url('GET', 'object-in-bucket.txt', 60))
```

A signed URL is displayed after you run the preceding code. You can share the URL with other users so that they can download the objects in the bucket by accessing the URL through a browser or by using tools such as wget. The URL is valid only within 60 seconds after it is generated.

Use a signed URL to authorize temporary access

You can generate a signed URL and provide the URL to a visitor for temporary access. When you generate a signed URL, you can specify the validity period of the URL to limit the period of access from visitors. By default, the validity period of a signed URL is 3,600 seconds. The maximum validity period of a signed URL is 32,400 seconds.

The following code provides an example on how to use a signed URL to download an object:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
# Set the validity period of the signed URL to 60 seconds.
print(bucket.sign_url('GET', '<yourObjectName>', 60))
```

6.1.2.2.10. Chinese characters and time

This topic describes how to use Chinese characters and time in OSS SDK for Python.

Chinese characters

To use Chinese characters in Python code, you must include a character encoding declaration in the beginning of the code. Otherwise, errors occur when you run the code. Example of a character encoding statement:

```
# -*- coding: utf-8 -*-
```

- Date types

  The following table describes the data types supported by Python 2.x.

Date type	Description
str	The string type. Corresponds to the bytes type in Python 3.x.
unicode	Unicode streams. The length is calculated based on the number of Chinese characters. For example, the length of `u'中文'` is 2.

  The following table describes the data types supported by Python 3.x.

Data type	Description
str	The string type. Corresponds to the unicode type in Python 2.x.

Data type	Description
bytes	Byte streams. The length is calculated based on the number of bytes. For example, the length of `b'中文'` is calculated based on the encoding mode. If UTF-8 is used, the length is 6 bytes.

- Input and output limits

  The following table describes the limits on input data.

Input data	Type	Description
OSS object name	str	If the input data type is bytes, it must be encoded in UTF-8.
Local file name	str, unicode	If the input data type is bytes, it must be encoded in UTF-8. Example: the yourLocalFile parameter value used in bucket.get_object_to_file.
Input data stream	bytes	Example: data in bucket.put_object.

  The following table describes limits on output data.

Output data	Type	Description
The result obtained by parsing the XML document	str	Example: a string in the result obtained by using bucket.list_object.
Downloaded content	bytes	By default, data of the bytes type used by OSS SDK for Python must be encoded in UTF-8. Therefore, ensure that the source Python file is encoded in UTF-8.

- Type conversion functions

  OSS SDK for Python provides three functions for type conversion:

Function	Description
to_bytes	- Converts the unicode type to the str type in Python 2.x. Data of other types is returned without changes. - Converts the str type to the bytes type in Python 3.x. Data of other types is returned without changes.

Function	Description
to_unicode	- Converts the str type to the unicode type in Python 2.x. Data of other types is returned without changes. - Converts the bytes type to the str type in Python 3.x. Data of other types is returned without changes.
to_string	This function is equivalent to to_bytes in Python 2.x. This function is equivalent to to_unicode in Python 3.x.

Time

OSS SDK for Python converts timestamp strings of the datetime.datetime type that are obtained from the server to a Unix timestamp corresponding to the amount of time in seconds elapsed since UTC 00:00 on January 1, 1970. For example, the last_modified parameter returned for bucket.get_object is an int Unix timestamp.

You can use the datetime.datetime.fromtimestamp() method to convert time to obtain timestamp strings.

6.1.2.2.11. IMG

OSS Image Processing (IMG) is a secure, cost-effective, and highly reliable image processing service that can process large amounts of data. After you upload source images to OSS, you can call `RESTful` API operations to process the images anytime, anywhere, and on any Internet device. IMG provides image processing API operations. To upload images, use the upload API operations provided by OSS. You can use OSS IMG to build your own image processing service.

Basic features

OSS IMG provides the following features:

- Query image information.
- Convert image formats.
- Resize, crop, and rotate images.
- Apply image effect.
- Add image, text, and text-and-image watermarks to images.
- Customize image processing styles. Log on to the OSS console. Click a bucket name to go to the bucket details page. Click the **Image Processing (IMG)** tab and click **Create Rule** to customize an image processing style.
- Call multiple IMG features by using cascade processing.

Usage

You can use standard `HTTP GET` requests to access IMG. All processing parameters are encoded in the query string of a `URL`.

- Anonymous access

If the ACL of an image object is `public-read`, as described in the following table, anonymous users can access the image object.

Bucket ACL	Object ACL
public-read or public-read-write	default
Any ACL	public-read or public-read-write

You can access IMG anonymously by using a third-level domain in the following format:

```
http://bucket.<endpoint>/object?x-oss-process=image/action,parame_value
```

- bucket: the name of the bucket.
- endpoint: the domain name used to access the region.
- object: the image object stored in OSS.
- image: the identifier reserved by IMG.
- action: the operation performed on the image, such as resizing, cropping, or rotating.
- parame: the parameter corresponding to the operation performed on the image.

Example:

```
http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
```

If you process an image by using a custom style, you can access IMG anonymously through a third-level domain in the following format:

```
http://bucket.<endpoint>/object?x-oss-process=x-oss-process=style/name
```

- style: the identifier reserved by the system for the custom style.
- name: the name of the custom style. The name is specified by the Rule Name parameter when you create the custom style in the console.

Example:

```
http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=style/oss-pic-style-w-100
```

You can use cascade processing to perform multiple operations in sequence on an image by using a URL in the following format:

```
http://bucket.<endpoint>/object?x-oss-process=image/action,parame_value/action,parame_value/...
```

Example:

```
http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100/rotate,90
```

IMG also supports HTTPS access. The following code provides an example:

```
https://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
```

- Authorized access

  If the ACL of an image object is private, you must have permissions on the image object before you can perform operations on the image object.

Bucket ACL	Object ACL
private	default
Any permission	private

The following code provides an example on how to generate a signed URL to access IMG:

```
# -*- coding: utf-8 -*-
import oss2
endpoint = '<The OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com>'
access_key_id = '<access_key_id>'
access_key_secret = '<access_key_secret>'
bucket_name = '<bucket_name>'
key = 'example.jpg'
# Create a bucket. All object-related API operations can be called based on the bucket.
bucket = oss2.Bucket(oss2.Auth(access_key_id, access_key_secret), endpoint, bucket_name)
# Upload a sample image.
bucket.put_object_from_file(key, 'example.jpg')
# Generate a signed URL and set the validity period to 10 minutes.
style = 'image/resize,m_fixed,w_100,h_100/rotate,90'
url = bucket.sign_url('GET', key, 10 * 60, params={'x-oss-process': style})
print(url)
```

> **Note**
>
> - You can configure Create Style, HTTPS, and Cascading Processing for authorized access.
> - The validity period of sign_url is set in seconds.

- Access by using SDKs

  You can use `OSS SDKs` to access and process image objects of any ACLs.

> **Note**
>
> - For the complete IMG code, visit GitHub.
> - You can use OSS SDKs to process image objects by configuring Create Style, HTTPS, and Cascading Processing.

- Basic operations

  The following code provides an example on how to perform basic IMG operations including obtaining image information, converting image formats, resizing, cropping, rotating, watermarking, and applying effects:

```
# -*- coding: utf-8 -*-
import os
import oss2
endpoint = '<The OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com>'
access_key_id = '<access_key_id>'
access_key_secret = '<access_key_secret>'
bucket_name = '<bucket_name>'
key = 'example.jpg'
new_pic = 'example-new.jpg'
# Create a bucket. All object-related API operations can be called based on the bucket.
bucket = oss2.Bucket(oss2.Auth(access_key_id, access_key_secret), endpoint, bucket_name
)
# Upload a sample image.
bucket.put_object_from_file(key, 'example.jpg')
# Resize the image.
style = 'image/resize,m_fixed,w_100,h_100'
bucket.get_object_to_file(key, new_pic, process=style)
# Crop the image.
style = 'image/crop,w_100,h_100,x_100,y_100,r_1'
bucket.get_object_to_file(key, new_pic, process=style)
# Rotate the image.
style = 'image/rotate,90'
bucket.get_object_to_file(key, new_pic, process=style)
# Sharpen the image.
style = 'image/sharpen,100'
bucket.get_object_to_file(key, new_pic, process=style)
# Add a text watermark to the image.
style = 'image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ'
bucket.get_object_to_file(key, new_pic, process=style)
# Convert the image format.
style = 'image/format,png'
bucket.get_object_to_file(key, new_pic, process=style)
# Delete the sample image.
bucket.delete_object(key)
# Delete the local file.
os.remove(new_pic)
```

> **Note** `get_object` also supports the IMG feature.

- Custom styles

```
# -*- coding: utf-8 -*-
import os
import oss2
endpoint = '<The OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com>'
access_key_id = '<access_key_id>'
access_key_secret = '<access_key_secret>'
bucket_name = '<bucket_name>'
key = 'example.jpg'
new_pic = 'example-new.jpg'
# Create a bucket. All object-related API operations can be called based on the bucket.
bucket = oss2.Bucket(oss2.Auth(access_key_id, access_key_secret), endpoint, bucket_name
)
# Upload a sample image.
bucket.put_object_from_file(key, 'example.jpg')
# Customize the image style.
style = 'style/oss-pic-style-w-100'
# Process the image.
bucket.get_object_to_file(key, new_pic, process=style)
# Delete the sample image.
bucket.delete_object(key)
# Delete the local file.
os.remove(new_pic)
```

> **Note** `get_object` also supports the IMG feature.

- Cascading processing

```
# -*- coding: utf-8 -*-
import os
import oss2
endpoint = '<The OSS endpoint. Example: http://oss-cn-hangzhou.aliyuncs.com>'
access_key_id = '<access_key_id>'
access_key_secret = '<access_key_secret>'
bucket_name = '<bucket_name>'
key = 'example.jpg'
new_pic = 'example-new.jpg'
# Create a bucket. All object-related API operations can be called based on the bucket.
bucket = oss2.Bucket(oss2.Auth(access_key_id, access_key_secret), endpoint, bucket_name
)
# Upload a sample image.
bucket.put_object_from_file(key, 'example.jpg')
# Perform cascade processing.
style = 'image/resize,m_fixed,w_100,h_100/rotate,90'
# Process the image.
bucket.get_object_to_file(key, new_pic, process=style)
# Delete the sample image.
bucket.delete_object(key)
# Delete the local file.
os.remove(new_pic)
```

> **Note** `get_object` also supports the IMG feature.

6.1.2.2.12. Handle exceptions

OssError exceptions of OSS SDK for Python are classified into ClientError, RequestError, and ServerError. Definitions of these errors are provided in the submodule of oss2.exceptions .

The following table describes the variable, type, and description of exceptions.

Variable	Type	Description
status	int	• If a ServerError exception occurs, an HTTP status code is returned. • If a ClientError exception or a RequestError exception occurs, the error status is returned.
request_id	str	• If a ServerError exception occurs, the OSS server returns the request ID. • If a ClientError exception or a RequestError exception occurs, the request ID parameter in the response is empty.

Variable	Type	Description
code and message	str	This variable indicates the text in the Code and Message tags in an OSS error response.

Examples

The following code provides an example on how to handle an exception and display the HTTP status code of the error when you download an object that does not exist:

```
# -*- coding: utf-8 -*-
import oss2
auth = oss2.Auth('<yourAccessKeyId>', '<yourAccessKeySecret>')
# The endpoint of the China (Hangzhou) region is used in this example. Specify the actual e
ndpoint.
bucket = oss2.Bucket(auth, 'http://oss-cn-hangzhou.aliyuncs.com', '<yourBucketName>')
try:
    stream = bucket.get_object('random-key.txt')
except oss2.exceptions.NoSuchKey as e:
    print('status={0}, request_id={1}'.format(e.status, e.request_id))
```

ClientError

ClientError occurs due to incorrect inputs on the client. For example, the error occurs when you use bucket.batch_delete_objects and receive an empty object list. The status value of ClientError is oss2.exceptions.OSS_CLIENT_ERROR_STATUS.

ServerError

When the OSS server returns the HTTP error code, OSS SDK for Python converts the error code to ServerError. ServerError derives multiple subclasses based on the HTTP status code and OSS error code. The NotFound subclass corresponds to 404 HTTP status code. The Conflict subclass corresponds to 409 HTTP status code.

The following table describes common error codes.

Error	HTTP status code	OSS error code	Description
NotModified	304	None	The error message returned because no modifications are performed.
AccessDenied	403	AccessDenied	The error message returned because the access is denied.
NoSuchBucket	404	NoSuchBucket	The error message returned because the specified bucket does not exist.

Error	HTTP status code	OSS error code	Description
NoSuchKey	404	NoSuchKey	The error message returned because the specified object does not exist.
NoSuchUpload	404	NoSuchUpload	The error message returned because the specified multipart upload task does not exist.
NoSuchWebsite	404	NoSuchWebsiteConfiguration	The error message returned because static website hosting is not configured for the specified bucket.
NoSuchLifecycle	404	NoSuchLifecycle	The error message returned because no lifecycle rule is configured for the specified bucket.
NoSuchCors	404	NoSuchCORSConfiguration	The error message returned because CORS rules are not configured for the specified bucket.
BucketNotEmpty	409	BucketNotEmpty	The error message returned because the bucket is not empty.
PositionNotEqualToLength	409	PositionNotEqualToLength	The error message returned because the configured position is not equal to the object length.
ObjectNotAppendable	409	ObjectNotAppendable	The error message returned because the object is not appendable.

6.1.2.3. PHP-SDK

6.1.2.3.1. Preface

This topic provides the sample code of OSS SDK for PHP in various use cases.

Source code

For the source code of OSS SDK for PHP, visit GitHub.

Sample codes

OSS SDK for PHP provides a variety of sample code for your reference or use. The following table describes the sample codes.

Sample file	Description
Object.php	Shows you how to perform object-related operations, including upload, download, copy, delete, and list objects as well as object metadata-related operations.
MultipartUpload.php	Shows you how to upload large objects and perform multipart upload.
Signature.php	Shows you how to generate a signed URL to authorize access.
Callback.php	Shows you how to perform upload callback.
Image.php	Shows you how to use Image Processing (IMG).
LiveChannel.php	Shows you how to use LiveChannel.
Bucket.php	Shows you how to manage buckets, including create, delete, and list buckets as well as configure ACL for a bucket.
BucketLifecycle.php	Shows you how to configure, query, and delete the lifecycle rules for a bucket.
BucketLogging.php	Shows you how to configure, query, and delete the logging configurations for a bucket.
BucketReferer.php	Shows you how to configure, query, and delete the hotlink protection configurations for a bucket.
BucketWebsite.php	Shows you how to configure, query, and delete the static website hosting configurations for a bucket.
BucketCors.php	Shows you how to configure, query, and delete the CORS configurations for a bucket.

6.1.2.3.2. Installation

This topic describes how to install OSS SDK for PHP.

Preparation

OSS SDK for PHP is applicable to PHP 5.3 and later versions. This topic uses PHP 5.6.22 as an example.

- Install the environment

  You must install PHP and cURL extension:

  - If a message that indicates the specified module is unavailable is displayed, set extension_dir to `C:/Windows/System32/`.

- In Ubuntu, run the `sudo apt-get install php-curl` command to install the cURL extension of PHP by using apt-get.
- In CentOS, run the `sudo yum install php-curl` command to install the cURL extension of PHP by using yum.

- Check the PHP version
  - You can run the `php -v` command to view the current PHP version.
  - You can run the `php -m` command to check whether the cURL extension is installed.

Download OSS SDK for PHP

- Download from GitHub
- Download previous versions

For more information, see API Documentation.

Install OSS SDK for PHP

You can use one of the following method to install SDK:

- Composer
  i. Go to the root directory of your project and run the `composer require aliyuncs/oss-sdk-php` command or add the following dependency to the `composer.json` file:

```
"require": {
    "aliyuncs/oss-sdk-php": "~2.x.x"
}
```

  ii. Run the `composer install` command to install the dependency. After the dependency is installed, check whether your directory structure complies with the following structure:

```
.
├── app.php
├── composer.json
├── composer.lock
└── vendor
```

  In the preceding directory structure, `app.php` indicates your application, and the `vendor/` directory contains the dependent library. You need to add the following dependency to `app.php` :

```
require_once __DIR__ . '/vendor/autoload.php';
```

> **Note**
>
> - If `autoload.php` is imported to your project, you do not need to import it again after you add the dependency of OSS SDK for PHP.
> - If a network error occurs when you use Composer, you can use the image source of Composer China by running the `composer config -g repositories.packagist composer http://packagist.phpcomposer.com` command.

- PHAR
  i. Select the corresponding version and download the packaged PHAR file from GitHub.
  ii. Import the PHAR file in your code:

```
require_once '/path/to/oss-sdk-php.phar';
```

- Source code
  i. Select the required version and download the ZIP package from GitHub.
  ii. The decompressed root directory contains the `autoload.php` file. Import the file to the code:

```
require_once '/path/to/oss-sdk/autoload.php';
```

6.1.2.3.3. Initialization

An OSSClient serves as the OSS PHP client to manage OSS resources such as buckets and objects.

Create an OSSClient instance

To create an OSSClient instance, you must specify an endpoint. For more information about endpoints, see Obtain an endpoint.

To create an OSSClient, you must specify an AccessKey pair. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

- Use an endpoint to create an OSSClient

  The following code provides an example on how to create an OSSClient instance based on an OSS endpoint. OSSClient supports concurrent tasks. Therefore, a project can contain one or more OSSClient instances.

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
} catch (OssException $e) {
    print $e->getMessage();
}
```

- Use STS to create an OSSClient

  The following code provides an example on how to create an OSSClient instance based on Security Token Service (STS):

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$securityToken = "<yourSecurityToken>";
try {
    $ossClient = new OssClient(
        $accessKeyId, $accessKeySecret, $endpoint, false, $securityToken);
} catch (OssException $e) {
    print $e->getMessage();
}
```

- Use a proxy server to create an OSSClient

  You can use a proxy server to create an OSSClient when you use OSS SDK for PHP version 5.3 and later. The following code provides an example on how to use a proxy server to create an OSSClient:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// Specify the IP address of the proxy server. Example: http://<username>:<password>@<pro
xyip>:<proxyport>.
$requestProxy = "<yourRequestProxy>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint, false, $request
Proxy);
} catch (OssException $e) {
    print $e->getMessage();
}
```

Configure network parameters

The following code provides an example on how to configure network parameters for an OSSClient:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
try {
    $ossClient = new OssClient(
        $accessKeyId, $accessKeySecret, $endpoint);
    // Set the timeout period for data transmission at the socket layer. Unit: seconds. Def
ault value: 5184000.
    $ossClient->setTimeout(3600);
    // Set the timeout period for connection establishment. Unit: seconds. Default value: 1
0.
    $ossClient->setConnectTimeout(10);
} catch (OssException $e) {
    print $e->getMessage();
}
```

6.1.2.3.4. Quick start

This topic describes how to use OSS SDK for PHP to perform routine operations, such as creating buckets, uploading objects, and downloading objects.

Create a bucket

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket = "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->createBucket($bucket);
} catch (OssException $e) {
    print $e->getMessage();
}
```

For more information about how to obtain an AccessKey ID and AccessKey secret, see Obtain an AccessKey pair.

For more information about how to obtain an endpoint, see Obtain an endpoint.

Upload objects

The following code provides an example on how to upload objects to OSS by using stream upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= " <yourBucketName>";
// <yourObjectName> indicates the complete path of the object that you want to upload to OS
S. The path must include the extension of the object name. Example: abc/efg/123.jpg.
$object = " <yourObjectName>";
$content = "Hi, OSS.";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putObject($bucket, $object, $content);
} catch (OssException $e) {
    print $e->getMessage();
}
```

Download objects

The following code provides an example on how to download an object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object that you want to download fro
m OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
$object = "<yourObjectName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $content = $ossClient->getObject($bucket, $object);
    print("object content: " . $content);
} catch (OssException $e) {
    print $e->getMessage();
}
```

List objects

The following code provides an example on how to list objects stored in a bucket named examplebucket. By default, a maximum of 100 objects are listed.

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $listObjectInfo = $ossClient->listObjects($bucket);
    $objectList = $listObjectInfo->getObjectList();
    if (! empty($objectList)) {
        foreach ($objectList as $objectInfo) {
        print($objectInfo->getKey() . "\t" . $objectInfo->getSize() . "\t" . $objectInfo->g
etLastModified() . "\n");
        }
    }
} catch (OssException $e) {
    print $e->getMessage();
}
```

Delete objects

The following code provides an example on how to delete an object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object that you want to delete from
OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
$object = "<yourObjectName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteObject($bucket, $object);
} catch (OssException $e) {
    print $e->getMessage();
}
```

6.1.2.3.5. Buckets

6.1.2.3.5.1. Create buckets

A bucket is a container used to store objects in Object Storage Service (OSS). Each object is contained in a bucket. This topic describes how to create a bucket.

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // Set the storage class of the bucket to Standard. The default storage class is Standa
rd.
    $options = array(
        OssClient::OSS_STORAGE => OssClient::OSS_STORAGE_Standard
    );
    // Set the ACL of the bucket to public read. The default bucket ACL is private.
    $ossClient->createBucket($bucket, OssClient::OSS_ACL_TYPE_PUBLIC_READ, $options);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

For the complete code used to create a bucket, visit GitHub.

6.1.2.3.5.2. List buckets

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $bucketListInfo = $ossClient->listBuckets();
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
$bucketList = $bucketListInfo->getBucketList();
foreach($bucketList as $bucket) {
    print($bucket->getLocation() . "\t" . $bucket->getName() . "\t" . $bucket->getCreatedat
e() . "\n");
}
```

6.1.2.3.5.3. Determine whether buckets exist

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to determine whether a bucket exists.

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $res = $ossClient->doesBucketExist($bucket);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
if ($res === true) {
    print(__FUNCTION__ . ": OK" . "\n");
} else {
    print(__FUNCTION__ . ": FAILED" . "\n");
}
```

6.1.2.3.5.4. Manage bucket ACLs

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to configure and query the access control list (ACL) of a bucket.

Configure ACL for a bucket

The following table describes the bucket ACLs.

ACL	Description	Value
Private	Only the owner or authorized users of the bucket can read and write the object.	OssClient::OSS_ACL_TYPE_PRIVATE
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	OssClient::OSS_ACL_TYPE_PUBLIC_READ

ACL	Description	Value
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	OssClient::OSS_ACL_TYPE_PUBLIC_READ_WRITE

The following code provides an example on how to configure the ACL of a bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// Set the ACL of the bucket to private.
$acl = OssClient::OSS_ACL_TYPE_PRIVATE;
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putBucketAcl($bucket, $acl);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Query the ACL of a bucket

The following code provides an example on how to query the ACL of a bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $res = $ossClient->getBucketAcl($bucket);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print('acl: ' . $res);
```

6.1.2.3.5.5. Delete buckets

Before you delete a bucket, ensure that all objects, LiveChannels, and parts that are generated from multipart upload in the bucket are deleted. The following code provides an example on how to delete a bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteBucket($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.5.6. Manage lifecycle rules

Object Storage Service (OSS) allows you to configure lifecycle rules to delete expired objects and parts or convert the storage class of expired objects to Infrequent Access (IA) or Archive to reduce your storage costs. This topic describes how to manage lifecycle rules for buckets.

Background

Each lifecycle rule contains the following information:

- Policy: specifies the mode to match objects and parts.
  - Match by prefix: matches objects and parts by prefix. You can create multiple rules to configure different prefixes. Each prefix must be unique.
  - Match by bucket: matches all objects and parts contained in the bucket. You can create only one rule if you select this method.
- Object lifecycle policy: specifies the validity period or expiration data and the operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired objects are deleted.
  - Expiration date: specifies a date. Objects that are last modified before this date expire and are deleted.
- Part lifecycle policy: specifies the validity period or expiration time and the delete operation to

perform on these objects after they expire.

- Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired parts are deleted.
- Expiration date: specifies a date. Parts that are last modified before this date expire and are deleted.

Lifecycle rules also apply to the parts uploaded by using uploadPart. In this case, the last modified time of an object is the time the multipart upload task is initiated.

Configure lifecycle rules

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\LifecycleConfig;
use OSS\Model\LifecycleRule;
use OSS\Model\LifecycleAction;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
// Set the rule ID and the prefix of the object names that match the rule.
$ruleId0 = "rule0";
$matchPrefix0 = "A0/";
$ruleId1 = "rule1";
$matchPrefix1 = "A1/";
$lifecycleConfig = new LifecycleConfig();
$actions = array();
// Specify that objects expire three days after they are last modified.
$actions[] = new LifecycleAction(OssClient::OSS_LIFECYCLE_EXPIRATION, OssClient::OSS_LIFECY
CLE_TIMING_DAYS, 3);
$lifecycleRule = new LifecycleRule($ruleId0, $matchPrefix0, "Enabled", $actions);
$lifecycleConfig->addRule($lifecycleRule);
$actions = array();
// Specify that the objects that are last modified before the specified date expire.
$actions[] = new LifecycleAction(OssClient::OSS_LIFECYCLE_EXPIRATION, OssClient::OSS_LIFECY
CLE_TIMING_DATE, '2022-10-12T00:00:00.000Z');
$lifecycleRule = new LifecycleRule($ruleId1, $matchPrefix1, "Enabled", $actions);
$lifecycleConfig->addRule($lifecycleRule);
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putBucketLifecycle($bucket, $lifecycleConfig);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

View lifecycle rules

The following code provides an example on how to query the lifecycle rules configured for the bucket named examplebucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$lifecycleConfig = null;
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $lifecycleConfig = $ossClient->getBucketLifecycle($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print($lifecycleConfig->serializeToXml() . "\n");
```

Delete lifecycle rules

The following code provides an example on how to delete lifecycle rules configured for the bucket named examplebucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteBucketLifecycle($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.5.7. Configure hotlink protection

OSS provides hotlink protection to prevent unauthorized domain names from accessing your OSS data. You can configure the Referer field in the HTTP header.

To configure hotlink protection, you must configure the following parameters:

- Referer Whitelist: Only specified domain names are allowed to access OSS resources.
- Allow Empty Referer: If you do not allow empty Refer fields, a request is allowed to access OSS resources only if the request includes the Referer field configured in the HTTP or HTTPS header.

Configure hotlink protection

Run the following code to configure the referer whitelist:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\RefererConfig;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$refererConfig = new RefererConfig();
// Allow empty Referers.
$refererConfig->setAllowEmptyReferer(true);
// Add a Referer whitelist. You can use an asterisk (*) or a question mark (?) as a wildcar
d to set the Referer parameter.
$refererConfig->addReferer("www.aliiyun.com");
$refererConfig->addReferer("www.aliiyuncs.com");
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putBucketReferer($bucket, $refererConfig);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Query hotlink protection information

Run the following code to obtain a referer whiltelist:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\RefererConfig;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$refererConfig = null;
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $refererConfig = $ossClient->getBucketReferer($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print($refererConfig->serializeToXml() . "\n");
```

Delete hotlink protection configurations

Run the following code to clear a referer whitelist:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\RefererConfig;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$refererConfig = new RefererConfig();
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // You cannot delete hotlink protection configurations directly. To delete hotlink prot
ection configurations, you must create a rule that allows an empty Referer field to replace
the existing rule.
    $ossClient->putBucketReferer($bucket, $refererConfig);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.5.8. Configure logging

You can enable logging to record access to a bucket in log objects, which are stored in a specified bucket.

The log objects are in the following format: `<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString`.

Enable logging

Run the following code to enable bucket access logging:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$option = array();
// Specify the bucket used to store log objects.
$targetBucket = "<yourBucketName>";
$targetPrefix = "access.log";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // Enable logging.
    $ossClient->putBucketLogging($bucket, $targetBucket, $targetPrefix, $option);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

View logging configurations

Run the following code to view the access logging configurations for a bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$loggingConfig = null;
$options = array();
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // View the logging configurations.
    $loggingConfig = $ossClient->getBucketLogging($bucket, $options);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print($loggingConfig->serializeToXml() . "\n");
```

Disable logging

Run the following code to disable access logging for a bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // Disable logging.
    $ossClient->deleteBucketLogging($bucket);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.5.9. Configure static website hosting

You can set the static website hosting mode for your bucket. After the configurations take effect, you can use the bucket domain name to access this static website and be redirected to a specified index page or error page.

For the complete static website hosting code, visit GitHub.

Configure static website hosting

Run the following code to configure static website hosting:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\WebsiteConfig;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
// Set the index page to index.html and the error page to error.html.
$websiteConfig = new WebsiteConfig("index.html", "error.html");
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putBucketWebsite($bucket, $websiteConfig);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

View static website hosting configurations

Run the following code to view static website hosting configurations:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$websiteConfig = null;
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $websiteConfig = $ossClient->getBucketWebsite($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print($websiteConfig->serializeToXml() . "\n");
```

Delete static website hosting configurations

Run the following code to delete static website hosting configurations:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteBucketWebsite($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.5.10. Configure CORS

Cross-origin resource sharing (CORS) allows web applications to access resources that belong to different regions. OSS provides CORS operations to facilitate cross-origin access control.

For the complete CORS rule code, visit GitHub.

Configure CORS rules

Run the following code to configure CORS rules for the specified bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Model\CorsConfig;
use OSS\Model\CorsRule;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$corsConfig = new CorsConfig();
$rule = new CorsRule();
// AllowedHeaders and ExposeHeaders do not support wildcards.
$rule->addAllowedHeader("x-oss-header");
// AllowedOlowedMethods allows only one wildcard asterisk (*). Asterisks (*) indicate that
all domain names or operations are allowed.
$rule->addAllowedOrigin("http://www.b.com");
$rule->addAllowedMethod("POST");
$rule->setMaxAgeSeconds(10);
// A maximum of 10 rules can be configured for each bucket.
$corsConfig->addRule($rule);
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // The existing rules are replaced.
    $ossClient->putBucketCors($bucket, $corsConfig);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Query CORS rules

Run the following code to obtain CORS rules:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$corsConfig = null;
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $corsConfig = $ossClient->getBucketCors($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
print($corsConfig->serializeToXml() . "\n");
```

Delete CORS rules

Run the following code to delete all CORS rules for a specified bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteBucketCors($bucket);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.6. Upload objects

6.1.2.3.6.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for PHP provides a variety of methods to upload objects.

You can upload objects to OSS by using one of the following methods:

- Simple upload: uploads an object up to 5 GB in size.
- Append upload: uploads an object up to 5 GB in size.
- Multipart upload: uploads an object up to 48.8 TB in size. Use multipart upload for large objects.

6.1.2.3.6.2. Simple upload

In simple upload, you can upload strings or local files. This topic describes how to upload strings and local files.

String upload

The following code provides an example on how to upload a string to the exampleobject.txt object in the exampledir directory of the examplebucket bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
// Configure the object content.
$content = "Hello OSS";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putObject($bucket, $object, $content);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
// You can configure headers in upload requests to specify the information of the uploaded
object. For example, you can set the object ACL to private and configure the user metadata
of the object.
$options = array(
    OssClient::OSS_HEADERS => array(
        'x-oss-object-acl' => 'private',
        'x-oss-meta-info' => 'your info'
    ),
);
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putObject($bucket, $object, $content, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Local file upload

The following code provides an example on how to upload a local file to OSS:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
// <yourLocalFile> consists of a local file path and a file name with an extension. Example
: /users/local/myfile.txt.
$filePath = "<yourLocalFile>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->uploadFile($bucket, $object, $filePath);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.6.3. Append upload

You can append strings and local files when you use append upload. The CopyObject operation cannot be performed on append objects.

Append strings

The following code provides an example on how to upload strings to OSS by using append upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
// Query the content of the object to upload.
$content_array = array('Hello OSS', 'Hi OSS', 'OSS OK');
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // Start the first append. // If the object is appended for the first time, the append
position is 0. The return value is the position for the next append. The position to start
the next append is the total length of appended bytes and the append object.
    $position = $ossClient->appendObject($bucket, $object, $content_array[0], 0);
    $position = $ossClient->appendObject($bucket, $object, $content_array[1], $position);

    $position = $ossClient->appendObject($bucket, $object, $content_array[2], $position);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Append local files

The following code provides an example on how to upload local files to OSS by using append upload:

```
 <? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
// Specify the bucket name.
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
// Obtain Local File 1.
$filePath = "<yourLocalFile1>";
// Obtain Local File 2.
$filePath1 = "<yourLocalFile2>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $position = $ossClient->appendFile($bucket, $object, $filePath, 0);
    $position = $ossClient->appendFile($bucket, $object, $filePath1, $position);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.6.4. Multipart upload

OSS allows you to use multipart upload to split an object into several parts and upload them separately. After all parts are uploaded, you can combine the uploaded parts into a complete object to complete the upload.

To implement multipart upload, perform the following operations:

1. Initiate a multipart upload task.

   Call the ossClient.initiateMultipartUpload method to obtain a unique upload ID in OSS.

2. Upload the parts.

   Call the ossClient.uploadPart method to upload the parts.

> **Note**
>
> - Part numbers identify the relative positions of parts in an object that share the same upload ID. If you have uploaded a part and used its part number again to upload another part, the latter part overwrites the former part.
> - OSS includes the MD5 hash of part data in the ETag header and returns the MD5 hash to the user.
> - OSS calculates the MD5 hash of uploaded data and compares it with the MD5 hash calculated by the SDK. If the two hashes are different, the InvalidDigest error code is returned.

3. Complete the multipart upload task.

   After all parts are uploaded, call the ossClient.completeMultipartUpload method to combine these parts into a complete object.

For the complete multipart upload code, visit GitHub.

The following code provides a complete example that describes the process of multipart upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Core\OssUtil;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$uploadFile = "<yourLocalFile>";
/**
 * Step 1. Initiate a multipart upload task and obtain the upload ID.
 */
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    // An upload ID is returned. It is the unique identifier for a multipart upload task. Y
ou can initiate related operations such as cancel or query a multipart upload task based on
the upload ID.
    $uploadId = $ossClient->initiateMultipartUpload($bucket, $object);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": initiateMultipartUpload FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": initiateMultipartUpload OK" . "\n");
/*
```

```
 * Step 2. Upload parts.
 */
$partSize = 10 * 1024 * 1024;
$uploadFileSize = filesize($uploadFile);
$pieces = $ossClient->generateMultiuploadParts($uploadFileSize, $partSize);
$responseUploadPart = array();
$uploadPosition = 0;
$isCheckMd5 = true;
foreach ($pieces as $i => $piece) {
    $fromPos = $uploadPosition + (integer)$piece[$ossClient::OSS_SEEK_TO];
    $toPos = (integer)$piece[$ossClient::OSS_LENGTH] + $fromPos - 1;
    $upOptions = array(
        $ossClient::OSS_FILE_UPLOAD => $uploadFile,
        $ossClient::OSS_PART_NUM => ($i + 1),
        $ossClient::OSS_SEEK_TO => $fromPos,
        $ossClient::OSS_LENGTH => $toPos - $fromPos + 1,
        $ossClient::OSS_CHECK_MD5 => $isCheckMd5,
    );
    // Perform the MD5 verification.
    if ($isCheckMd5) {
        $contentMd5 = OssUtil::getMd5SumForFile($uploadFile, $fromPos, $toPos);
        $upOptions[$ossClient::OSS_CONTENT_MD5] = $contentMd5;
    }
    try {
        // Upload the parts.
        $responseUploadPart[] = $ossClient->uploadPart($bucket, $object, $uploadId, $upOpti
ons);
    } catch(OssException $e) {
        printf(__FUNCTION__ . ": initiateMultipartUpload, uploadPart - part#{$i} FAILED\n")
;
        printf($e->getMessage() . "\n");
        return;
    }
    printf(__FUNCTION__ . ": initiateMultipartUpload, uploadPart - part#{$i} OK\n");
}
// $uploadParts is an array that consists of the ETags and the PartNumbers of each part.
$uploadParts = array();
foreach ($responseUploadPart as $i => $eTag) {
    $uploadParts[] = array(
        'PartNumber' => ($i + 1),
        'ETag' => $eTag,
    );
}
/**
 * Step 3. Complete the multipart upload task.
 */
try {
    // You must provide all valid $uploadParts when you perform this operation. OSS verifie
s the validity of each part after it receives the submitted $uploadParts. After all parts a
re verified, OSS combines these parts into a complete object.
    $ossClient->completeMultipartUpload($bucket, $object, $uploadId, $uploadParts);
}  catch(OssException $e) {
    printf(__FUNCTION__ . ": completeMultipartUpload FAILED\n");
    printf($e->getMessage() . "\n");
```

```
    return;
}
printf(__FUNCTION__ . ": completeMultipartUpload OK\n");
```

The following table describes the parameters contained in $options from the preceding sample code.

Parameter	Description
$ossClient::OSS_FILE_UPLOAD	Uploads the object.
OssClient::OSS_PART_NUM	The part number.
OssClient::OSS_SEEK_TO	The start position.
OssClient::OSS_LENGTH	The size of the object.
OssClient::OSS_PART_SIZE	The size of each part.
OssClient::OSS_CHECK_MD5	Specifies whether to enable MD5 verification. A value of true indicates that the MD5 verification is enabled.

Cancel a multipart upload task

You can call $ossClient->abortMultipartUpload to cancel a multipart upload task. If you cancel a multipart upload task, you cannot use the upload ID to perform any operations on the parts. The uploaded parts are deleted.

The following code provides an example on how to cancel a multipart upload task:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$upload_id = "<yourUploadId>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->abortMultipartUpload($bucket, $object, $upload_id);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Multipart upload of local files

The following code provides an example on how to upload a local file to OSS by using multipart upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$file = "<yourLocalFile>";
$options = array(
    OssClient::OSS_CHECK_MD5 => true,
    OssClient::OSS_PART_SIZE => 1,
);
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->multiuploadFile($bucket, $object, $file, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ":  OK" . "\n");
```

Multipart upload of local folders

The following code provides an example on how to upload a local folder including all files in the folder to OSS by using multipart upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$localDirectory = ".";
$prefix = "samples/codes";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->uploadDir($bucket, $prefix, $localDirectory);
}  catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ":  OK" . "\n");
```

List uploaded parts

The following code provides an example on how to list uploaded parts:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$uploadId = "<yourUploadId>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $listPartsInfo = $ossClient->listParts($bucket, $object, $uploadId);
    foreach ($listPartsInfo->getListPart() as $partInfo) {
        print($partInfo->getPartNumber() . "\t" . $partInfo->getSize() . "\t" . $partInfo->
getETag() . "\t" . $partInfo->getLastModified() . "\n");
    }
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

List multipart upload tasks

The following code provides an example on how to list multipart upload tasks:

```
<? php
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$options = array(
    'delimiter' => '/',
    'max-uploads' => 100,
    'key-marker' => '',
    'prefix' => '',
    'upload-id-marker' => ''
);
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $listMultipartUploadInfo = $ossClient->listMultipartUploads($bucket, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": listMultipartUploads FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
printf(__FUNCTION__ . ": listMultipartUploads OK\n");
$listUploadInfo = $listMultipartUploadInfo->getUploads();
var_dump($listUploadInfo);
```

The following table describes the parameters contained in $options from the preceding sample code.

Parameter	Description
delimiter	Groups objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes.
key-marker	All multipart upload tasks with objects whose names start with the letter that comes after the key-marker value in the alphabetical order. You can use key-marker and upload-id-marker together to specify the position after which the next list begins.
max-uploads	The maximum number of multipart upload tasks to list this time. The default value is 1000. The maximum value is 1000.

Parameter	Description
prefix	Specifies the prefix that returned object names must contain. Note that if you use a prefix for a query, the returned object names contain the prefix.
upload-id-marker	The upload ID of the multipart upload task after which the list begins. This parameter is used together with the key-marker parameter. If key-marker is not configured, upload-id-marker is invalid. If the key-marker parameter is configured, the query result includes: • All objects whose names start with a letter that comes after the key-marker parameter value in alphabetical order. • All objects whose names start with the letter the same as the value of key-marker. The value of uploadId is greater than that of upload-id-marker.

6.1.2.3.6.5. Upload callback

This topic describes how to use upload callback in simple upload and multipart upload.

Configure callback for simple upload

The following code provides an example on how to configure callback for simple upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// Configure callback for upload.
// callbackUrl is the IP address of the callback server. Examples: http://oss-demo.aliyuncs
.com:23450 and http://127.0.0.1:9090.
// Optional. callbackHost is the value of the host field carried in the callback request.
$url =
    '{
        "callbackUrl":"<yourCallbackServerUrl>",
        "callbackHost":"<yourCallbackServerHost>",
        "callbackBody":"bucket=${bucket}&object=${object}&etag=${etag}&size=${size}&mimeTyp
e=${mimeType}&imageInfo.height=${imageInfo.height}&imageInfo.width=${imageInfo.width}&image
Info.format=${imageInfo.format}&my_var1=${x:var1}&my_var2=${x:var2}",
        "callbackBodyType":"application/x-www-form-urlencoded"
    }';
// Configure custom parameters for the callback request. Each custom parameter consists of
a key and a value. The key must start with x:.
$var =
    '{
        "x:var1":"value1",
        "x:var2":"value2"
    }';
$options = array(OssClient::OSS_CALLBACK => $url,
    OssClient::OSS_CALLBACK_VAR => $var
);
$result = $ossClient->putObject($bucket, $object, file_get_contents(__FILE__), $options);
print_r($result['body']);
print_r($result['info']['http_code']);
```

Configure callback for multipart upload

The following code provides an example on how to configure callback for multipart upload:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
```

```
/
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Core\OssUtil;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$uploadFile = "<yourLocalFile>";
/**
 * Step 1. Initiate a multipart upload task and obtain the uploadId.
 */
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// An upload ID is returned. It is the unique identifier for a multipart upload task. You c
an initiate related operations such as cancel or query a multipart upload task based on the
upload ID.
$uploadId = $ossClient->initiateMultipartUpload($bucket, $object);
print(__FUNCTION__ . ": initiateMultipartUpload OK" . "\n");
/*
 * Step 2. Upload parts.
 */
$partSize = 10 * 1024 * 1024;
$uploadFileSize = filesize($uploadFile);
$pieces = $ossClient->generateMultiuploadParts($uploadFileSize, $partSize);
$responseUploadPart = array();
$uploadPosition = 0;
$isCheckMd5 = true;
foreach ($pieces as $i => $piece) {
    $fromPos = $uploadPosition + (integer)$piece[$ossClient::OSS_SEEK_TO];
    $toPos = (integer)$piece[$ossClient::OSS_LENGTH] + $fromPos - 1;
    $upOptions = array(
        $ossClient::OSS_FILE_UPLOAD => $uploadFile,
        $ossClient::OSS_PART_NUM => ($i + 1),
        $ossClient::OSS_SEEK_TO => $fromPos,
        $ossClient::OSS_LENGTH => $toPos - $fromPos + 1,
        $ossClient::OSS_CHECK_MD5 => $isCheckMd5,
    );
    // Perform the MD5 verification.
    if ($isCheckMd5) {
        $contentMd5 = OssUtil::getMd5SumForFile($uploadFile, $fromPos, $toPos);
        $upOptions[$ossClient::OSS_CONTENT_MD5] = $contentMd5;
    }
    try {
        // Upload the parts.
        $responseUploadPart[] = $ossClient->uploadPart($bucket, $object, $uploadId, $upOpti
ons);
    } catch(OssException $e) {
        printf(__FUNCTION__ . ": initiateMultipartUpload, uploadPart - part#{$i} FAILED\n")
;
        printf($e->getMessage() . "\n");
        return;
    }
```

```
    printf(__FUNCTION__ . ": initiateMultipartUpload, uploadPart - part#{$i} OK\n");
}
// $uploadParts is an array that consists of the ETags and the PartNumbers of each part.
$uploadParts = array();
foreach ($responseUploadPart as $i => $eTag) {
    $uploadParts[] = array(
        'PartNumber' => ($i + 1),
        'ETag' => $eTag,
    );
}
/**
 * Step 3. Complete the multipart upload task.
 */
// callbackUrl is the IP address of the callback server. Examples: http://oss-demo.aliyuncs
.com:23450 and http://127.0.0.1:9090.
// Optional. callbackHost is the value of the host field carried in the callback request.
$json =
    '{
        "callbackUrl":"<yourCallbackServerUrl>",
        "callbackHost":"<yourCallbackServerHost>",
        "callbackBody":"{\"mimeType\":${mimeType},\"size\":${size},\"x:var1\":${x:var1},\"x
:var2\":${x:var2}}",
        "callbackBodyType":"application/json"
    }';
// Configure custom parameters for the callback request. Each custom parameter consists of
a key and a value. The key must start with x:.
$var =
    '{
        "x:var1":"value1",
        "x:var2":"value2"
    }';
$options = array(OssClient::OSS_CALLBACK => $json,
    OssClient::OSS_CALLBACK_VAR => $var);
// You must provide all valid $uploadParts when you perform this operation. OSS verifies th
e validity of each part after it receives the submitted $uploadParts. After all parts are v
erified, OSS combines these parts into a complete object.
$ossClient->completeMultipartUpload($bucket, $object, $uploadId, $uploadParts, $options);
printf(__FUNCTION__ . ": completeMultipartUpload OK\n");
```

6.1.2.3.7. Download objects

6.1.2.3.7.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for PHP provides a variety of methods to download objects.

You can use one of the following methods to download objects:

- Download to local files
- Download objects to local memory
- Range download

- Conditional download

6.1.2.3.7.2. Download to local files

This topic describes how to use OSS SDK for PHP to download specific objects to local files.

The following code provides an example on how to download a specific object to a local file:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
// <yourObjectName> indicates the complete path of the object you want to download from OSS
. The path must include the extension of the object name. Example: abc/efg/123.jpg.
$object = "<yourObjectName>";
// <yourLocalFile> consists of a local file path and a file name with an extension. Example
: /users/local/myfile.txt.
$localfile = "<yourLocalFile>";
$options = array(
        OssClient::OSS_FILE_DOWNLOAD => $localfile
    );
// Use try catch to catch exceptions. If an exception is returned, the download fails. If n
o exceptions are returned, the object is downloaded.
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->getObject($bucket, $object, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK, please check localfile: 'upload-test-object-name.txt'" . "\n");
```

6.1.2.3.7.3. Download objects to local memory

This topic describes how to use OSS SDK for PHP to download specified objects to local memory.

The following code provides an example on how to download a specified object to local memory and display the content of the object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $content = $ossClient->getObject($bucket, $object);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print($content);
print(__FUNCTION__ . ": OK" . "\n");
```

Note If a power outage occurs, data stored in the memory is lost. For more information about how to store the downloaded object in a local disk, see Download to local files.

6.1.2.3.7.4. Range download

If you need only part of the data in an object, you can use range download to download data within the specified range.

The following code provides an example on how to download data within the range from byte 0 to byte 4 in an object to local memory:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
// Query the data within the range from byte 0 to byte 4, including a total of 5 bytes of d
ata. If the specified range is invalid, for example, the specified range includes a negativ
e number, or the specified value is larger than the object size, the entire object is downl
oaded.
$options = array(OssClient::OSS_RANGE => '0-4');
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $content = $ossClient->getObject($bucket, $object, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print ($content);
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.7.5. Conditional download

OSS allows you to configure one or more conditions for object download. If the specified conditions are met, the object is downloaded. If the specified conditions are not met, an error is returned and the object is not downloaded.

The following table describes the conditions that you can configure for object download.

Parameter	Description	Configuration method
If-Modified-Since	If the specified time is earlier than the time the object is modified, the object is downloaded. Otherwise, 304 Not modified is returned.	OssClient::OSS_IF_MODIFIED_SINCE

Parameter	Description	Configuration method
If-Unmodified-Since	If the specified time is later than or equal to the time the object is modified, the object is downloaded. Otherwise, 412 Precondition failed is returned.	OssClient::OSS_IF_UNMODIFIED_SINCE
If-Match	If the specified ETag matches that of an object, the object is downloaded. Otherwise, 412 Precondition failed is returned.	OssClient::OSS_IF_MATCH
If-None-Match	If the specified ETag does not match that of an object, the object is downloaded. Otherwise, 304 Not modified is returned.	OssClient::OSS_IF_NONE_MATCH

> **Note**
>
> - You can use If-Modified-Since and If-Unmodified-Since as object download conditions at the same time. You can use If-Match and If-None-Match as object download conditions at the same time.
> - You can use $ossClient->getObjectMeta to obtain the ETag.

You can use conditional download to download objects to the local file or local memory. The following code provides an example on how to perform conditional download:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
try{
    $options = array(
        OssClient::OSS_HEADERS => array(
            OssClient::OSS_IF_MODIFIED_SINCE => "Fri, 13 Nov 2015 14:47:53 GMT"),
    );
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $content = $ossClient->getObject($bucket, $object, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print ($content);
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.8. Manage objects

6.1.2.3.8.1. Overview

You can manage objects in a bucket by using a variety of operations including SetObjectAcl, GetObjectAcl, ListObjects, DeleteObject, and CopyObject.

By using the preceding operations, you can perform the following operations:

- Determine whether objects exist
- Manage object ACLs
- Manage object metadata
- List objects
- Delete objects
- Copy an object

6.1.2.3.8.2. Determine whether objects exist

This topic describes how to determine whether an object exists.

Use the following code to determine whether a specified object exists:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $exist = $ossClient->doesObjectExist($bucket, $object);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
var_dump($exist);
```

6.1.2.3.8.3. Manage object ACLs

This topic describes how to manage the access control list (ACL) of an object.

The following table describes the ACLs that can be configured for an object.

ACL	Description	Value
Inherited from the bucket	The ACL of an object is the same as that of the bucket to which the object belongs.	default
Private	Only the owner or authorized users of the bucket can read and write the object.	private
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	public-read

ACL	Description	Value
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	public-read-write

The ACL of objects take precedence over that of buckets. For example, if the ACL of a bucket is private, while the object ACL is public read-write, all users can read and write the object. If an object is not configured with an ACL, its ACL is the same as that of its bucket by default.

Configure ACL for an object

You can run the following code to configure an ACL for a specified object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
// Set the ACL for the object to public read. By default, the ACL for the object inherit th
e ACL for the bucket.
$acl = "public-read";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putObjectAcl($bucket, $object, $acl);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Query the ACL for an object

You can run the following code to obtain the ACL for a specified object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $objectAcl = $ossClient->getObjectAcl($bucket, $object);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
var_dump($objectAcl);
```

6.1.2.3.8.4. Manage object metadata

This topic describes how to manage object metadata.

Configure object metadata

The following code provides an example on how to configure object metadata:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$content = file_get_contents(__FILE__);
$options = array(
    OssClient::OSS_HEADERS => array(
        'Expires' => '2012-10-01 08:00:00',
        'Content-Disposition' => 'attachment; filename="xxxxxx"',
        'x-oss-meta-self-define-title' => 'user define meta info',
    ));
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->putObject($bucket, $object, $content, $options);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Modify object metadata

The following code provides an example on how to modify object metadata:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$fromBucket = "<yourFromBucketName>";
$fromObject = "<yourFromObjectName>";
$toBucket = "<yourToBucketName>";
$toObject = "<yourToObjectName>";
$copyOptions = array(
    OssClient::OSS_HEADERS => array(
        'Expires' => '2018-10-01 08:00:00',
        'Content-Disposition' => 'attachment; filename="xxxxxx"',
        'x-oss-meta-location' => 'location',
    ),
);
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->copyObject($fromBucket, $fromObject, $toBucket, $toObject, $copyOptions);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Query object metadata

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $objectMeta = $ossClient->getObjectMeta($bucket, $object);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
if (isset($objectMeta[strtolower('Content-Disposition')]) &&
    'attachment; filename="xxxxxx"' === $objectMeta[strtolower('Content-Disposition')]
) {
    print(__FUNCTION__ . ": ObjectMeta checked OK" . "\n");
} else {
    print(__FUNCTION__ . ": ObjectMeta checked FAILED" . "\n");
}
```

6.1.2.3.8.5. List objects

This topic describes how to list all objects or objects that meet specific conditions in a specified bucket.

List all objects

The following code provides an example on how to list all the objects in a specified bucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
$nextMarker = '';
while (true) {
    try {
        $options = array(
            'delimiter' => '',
            'marker' => $nextMarker,
        );
        $listObjectInfo = $ossClient->listObjects($bucket, $options);
    } catch (OssException $e) {
        printf(__FUNCTION__ . ": FAILED\n");
        printf($e->getMessage() . "\n");
        return;
    }
    // Obtain nextMarker to list the remaining objects. The reading starts from the object
next to the last object previously obtained through the listObjects operation.
    $nextMarker = $listObjectInfo->getNextMarker();
    $listObject = $listObjectInfo->getObjectList();
    $listPrefix = $listObjectInfo->getPrefixList();
    if (! empty($listObject)) {
        print("objectList:\n");
        foreach ($listObject as $objectInfo) {
            print($objectInfo->getKey() . "\n");
        }
    }
    if (! empty($listPrefix)) {
        print("prefixList: \n");
        foreach ($listPrefix as $prefixInfo) {
            print($prefixInfo->getPrefix() . "\n");
        }
    }
    if ($listObjectInfo->getIsTruncated() ! == "true") {
       break;
    }
}
```

Note

- In the preceding sample code, $options is optional and can be used to list all objects in the entire bucket or in a folder.
- The listObjects method is used to obtain a list of objects. For information about how to obtain attributes such as the name and size of an object, see Manage object metadata.

List the objects that meet specific conditions

The following code provides an example on how to list objects that meet specific conditions:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
$prefix = 'dir/';
$delimiter = '/';
$nextMarker = '';
$maxkeys = 10;
$options = array(
    'delimiter' => $delimiter,
    'prefix' => $prefix,
    'max-keys' => $maxkeys,
    'marker' => $nextMarker,
);
try {
    $listObjectInfo = $ossClient->listObjects($bucket, $options);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
$objectList = $listObjectInfo->getObjectList(); // object list
$prefixList = $listObjectInfo->getPrefixList(); // directory list
if (! empty($objectList)) {
    print("objectList:\n");
    foreach ($objectList as $objectInfo) {
        print($objectInfo->getKey() . "\n");
    }
}
if (! empty($prefixList)) {
    print("prefixList: \n");
    foreach ($prefixList as $prefixInfo) {
        print($prefixInfo->getPrefix() . "\n");
    }
}
```

The following table describes the parameters contained in $options from the preceding sample code.

Parameter	Description	Required
delimiter	Specifies the character used to group objects by name. CommonPrefixes specifies a set of substrings of objects whose names share a specific prefix and end with the next occurrence of the specified delimiter.	No
prefix	Specifies the prefix that the returned object names must contain.	No
max-keys	Specifies the maximum number of objects that can be listed each time. The default value is 100. The maximum value is 1000.	No
marker	Specifies the name of the object after which the list begins.	No

6.1.2.3.8.6. Delete objects

This topic describes how to delete objects.

Note

Delete a single object

The following code provides an example on how to delete an object named *exampleobject.txt* from a bucket named examplebucket:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteObject($bucket, $object);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Delete multiple objects

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$objects = array();
$objects[] = "<yourObjectName1>";
$objects[] = "<yourObjectName2>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->deleteObjects($bucket, $objects);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Note If you use try{}catch{} and an exception is returned, a single object or multiple objects fail to be deleted. You can use $e->getMessage to obtain the error message and analyze causes.

6.1.2.3.8.7. Copy an object

This topic describes how to copy an object.

Object copy has the following limits:

- You must have read permissions on the source object and write permissions on the destination bucket.
- You cannot copy an object across regions.

Copy a small object

You can call $ossClient->copyObject to copy an object smaller than or equal to 1 GB from the source bucket to the destination bucket within the same region.

The following code provides an example on how to copy a small object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$from_bucket = "<yourFromBucketName>";
$from_object = "<yourFromObjectName>";
$to_bucket = $bucket;
$to_object = $from_object . '.copy';
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $ossClient->copyObject($from_bucket, $from_object, $to_bucket, $to_object);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

Copy a large object

To copy an object larger than 1 GB, you must split the object into smaller parts and copy them sequentially by using UploadPartCopy. To implement multipart copy, perform the following operations:

1. Call $ossClient->initiateMultipartUpload to initiate a multipart copy task.
2. Call $ossClient->uploadPartCopy to perform multipart copy. All parts except for the last part, must be larger than 100 KB.
3. Call $ossClient->completeMultipartUpload to complete the multipart copy task.

The following code provides an example on how to perform multipart copy:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
```

```
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$src_bucket = "<yourSourceBucketName>";
$src_object = "<yourSourceObjectName>";
$dst_bucket = "<yourDestinationBucketName>";
$dst_object = "<yourDestinationObjectName>";
// Set the part size.
$part_size = 256*1024*1024;
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
    $objectMeta = $ossClient->getObjectMeta($src_bucket, $src_object);
    $length = $objectMeta['content-length'] + 0;
    // Initiate a multipart copy task.
    $upload_id = $ossClient->initiateMultipartUpload($dst_bucket, $dst_object);
    // Copy each part sequentially.
    $pieces = $ossClient->generateMultiuploadParts($length, $part_size);
    $response_upload_part = array();
    $copyId = 1;
    $upload_position = 0;
    foreach ($pieces as $i => $piece) {
        $from_pos = $upload_position + (integer)$piece['seekTo'];
        $to_pos = (integer)$piece['length'] + $from_pos - 1;
        $up_options = array(
            'start' => $from_pos,
            'end' => $to_pos,
        );
        $response_upload_part[] = $ossClient->uploadPartCopy( $src_bucket, $src_object, $dst_bucket, $dst_object, $copyId, $upload_id, $up_options);
        $copyId = $copyId + 1;
    }
    // Complete the multipart copy task.
    $upload_parts = array();
    foreach ($response_upload_part as $i => $etag) {
        $upload_parts[] = array(
            'PartNumber' => ($i + 1),
            'ETag' => $etag,
        );
    }
    $result = $ossClient->completeMultipartUpload($dst_bucket, $dst_object, $upload_id, $upload_parts);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.9. Authorized access

This topic describes how to use Security Token Service (STS) and a signed URL to authorize access.

Use STS to authorize temporary access

Alibaba Cloud STS is a web service that provides a temporary access token to a cloud computing user. You can use STS to grant a third-party application or your RAM user an access credential with a customized validity period and permissions.

STS has the following benefits:

- You need only to generate an access token and send the access token to a third-party application, instead of exposing your long-term AccessKey pair to the third-party application. You can customize the access permissions and validity period of this token.
- The access token automatically expires when the validity period ends.

The following code provides an example on how to create a signature request by using STS:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$securityToken = "<yourSecurityToken>";
$content = "Hi, OSS.";
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint, false, $securityT
oken);
    $ossClient->putObject($bucket, $object, $content);
} catch (OssException $e) {
    print $e->getMessage();
}
```

Use a signed URL to authorize temporary access

You can generate a signed URL and provide the URL to a visitor for temporary access. When you generate a signed URL, you can specify the validity period of the URL to limit the period of access from visitors. By default, the validity period of a signed URL is 3,600 seconds. The maximum validity period of a signed URL is 32,400 seconds.

For the complete code of authorized access, visit GitHub.

- Generate a signed URL to download an object

  The following code provides an example on how to generate a signed URL to download an object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Http\RequestCore;
use OSS\Http\ResponseCore;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$securityToken = "<yourSecurityToken>";
// Set the validity period of a URL to 3,600 seconds.
$timeout = 3600;
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint, false, $securit
yToken);
    // Generate the signed URL for GetObject.
    $signedUrl = $ossClient->signUrl($bucket, $object, $timeout);
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": signedUrl: " . $signedUrl . "\n");
// You can run code to access the signed URL, or access the signed URL in a browser.
$request = new RequestCore($signedUrl);
// Set GET as the default method to access the singed URL.
$request->set_method('GET');
$request->add_header('Content-Type', '');
$request->send_request();
$res = new ResponseCore($request->get_response_header(), $request->get_response_body(), $
request->get_response_code());
if ($res->isOK()) {
    print(__FUNCTION__ . ": OK" . "\n");
} else {
    print(__FUNCTION__ . ": FAILED" . "\n");
};
```

- Generate a signed URL to upload an object

  The following code provides an example on how to generate a signed URL to upload an object:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
use OSS\Core\OssException;
use OSS\Http\RequestCore;
use OSS\Http\ResponseCore;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$securityToken = "<yourSecurityToken>";
$timeout = 3600;
try {
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint, false, $securit
yToken);
    // Generate the signed URL for PutObject.
    $signedUrl = $ossClient->signUrl($bucket, $object, $timeout, "PUT");
} catch (OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print(__FUNCTION__ . ": signedUrl: " . $signedUrl . "\n");
$content = "Hello OSS.";
$request = new RequestCore($signedUrl);
// Set PUT as the default method to access the signed URL.
$request->set_method('PUT');
$request->add_header('Content-Type', '');
$request->add_header('Content-Length', strlen($content));
$request->set_body($content);
$request->send_request();
$res = new ResponseCore($request->get_response_header(),
    $request->get_response_body(), $request->get_response_code());
if ($res->isOK()) {
    print(__FUNCTION__ . ": OK" . "\n");
} else {
    print(__FUNCTION__ . ": FAILED" . "\n");
};
```

6.1.2.3.10. IMG

OSS Image Processing (IMG) is a secure, cost-effective, and highly reliable image processing service that can process large amounts of data. After you upload source images to OSS, you can call RESTful API operations to process the images anytime, anywhere, and on any Internet device.

For the complete IMG code, visit GitHub.

Basic features

OSS IMG provides the following features:

- Query image information.
- Convert image formats.
- Resize, crop, and rotate images.
- Apply image effect.
- Add image, text, and text-and-image watermarks to images.
- Customize image processing styles. Log on to the OSS console. Click a bucket name to go to the bucket details page. Click the **Image Processing (IMG)** tab and click **Create Rule** to customize an image processing style.
- Use cascade processing to call multiple IMG features.

Usage

You can use standard `HTTP GET` requests to access IMG. All processing parameters are encoded in the query string of a URL.

If the ACL of an image object is public-read, as described in the following table, anonymous users can access the image object.

Bucket ACL	Object ACL
public-read or public-read-write	default
Any ACL	public-read or public-read-write

You can anonymously access IMG by using a third-level domain in the following format:

```
http://bucket.<endpoint>/object?x-oss-process=image/action,parame_value
```

Parameter	Description
bucket	The name of the bucket.
endpoint	The domain name used to access the region.
object	The name of the image object.
image	The identifier reserved by IMG.
action	The operations performed on images, such as scaling, cropping, and rotating.

Parameter	Description
param	The parameters corresponding to the operations performed on the images.

- Basic operations

  For example, you can scale an image to a width of 100 and adjust the height based on the ratio:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
  ```

- Customize an image style

  You can anonymously access IMG by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=style/<yourStyleName>
  ```

  - style: the identifier reserved by IMG for the custom style.
  - yourStyleName: the name of the custom style. The name is specified by the Rule Name parameter when you create the custom style in the console.

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=style/oss-pic-style-w-100
  ```

- Cascade processing

  You can use cascade processing to perform multiple operations in sequence on an image by using a URL in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction1>,<yourParamValue1>/<yourAction2>,<yourParamValue2>/...
  ```

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100/rotate,90
  ```

- Access by using HTTPS

  IMG supports access by using HTTPS. Example:

  ```
  https://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
  ```

- Authorized access

  If the ACL of an image object is private, you must have permissions on the image object before you can perform operations on the image object.

Bucket ACL	Object ACL
private	default

Bucket ACL	Object ACL
Any ACL	private

The following code provides an example on how to generate a signed URL to access IMG:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actua
l endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
$object = "<yourObjectName>";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// Generate a signed URL that you can directly access by using a browser. The validity pe
riod of the URL is 3,600 seconds.
$timeout = 3600;
$options = array(
    OssClient::OSS_PROCESS => "image/resize,m_lfit,h_100,w_100" );
$signedUrl = $ossClient->signUrl($bucket, $object, $timeout, "GET", $options);
print("rtmp url: \n" . $signedUrl);
```

- Access by using SDKs

  You can use OSS SDKs to access and process the image objects of any ACL.

  - Basic operations

    The following code provides an example on how to perform basic IMG operations including obtaining image information, converting image formats, resizing, cropping, rotating, watermarking, and applying effects:

    ```
    <? php
    if (is_file(__DIR__ . '/../autoload.php')) {
        require_once __DIR__ . '/../autoload.php';
    }
    if (is_file(__DIR__ . '/../vendor/autoload.php')) {
        require_once __DIR__ . '/../vendor/autoload.php';
    }
    use OSS\OssClient;
    $accessKeyId = "<yourAccessKeyId>";
    $accessKeySecret = "<yourAccessKeySecret>";
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
    ual endpoint.
    $endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
    $bucket = "<yourBucketName>";
    ```

```
$object = "<yourObjectName>";
$download_file = "download.jpg";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// Upload a sample image.
$ossClient->uploadFile($bucket, $object, "example.jpg");
// Resize the image.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/resize,m_fixed,h_100,w_100" );
$ossClient->getObject($bucket, $object, $options);
// Crop the image.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/crop,w_100,h_100,x_100,y_100,r_1" );
$ossClient->getObject($bucket, $object, $options);
// Rotate the image.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/rotate,90" );
$ossClient->getObject($bucket, $object, $options);
// Sharpen the image.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/sharpen,100" );
$ossClient->getObject($bucket, $object, $options);
// Add watermarks to the image.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ" );
$ossClient->getObject($bucket, $object, $options);
// Convert the image format.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/format,png" );
$ossClient->getObject($bucket, $object, $options);
// Obtain the image information.
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => "image/info" );
$ossClient->getObject($bucket, $object, $options);
// Delete the sample image.
$ossClient->deleteObject($bucket, $object);
```

- Custom image styles

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket = "<yourBucketName>";
$object = "<yourObjectName>";
$download_file = "download.jpg";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// Upload a sample image.
$ossClient->uploadFile($bucket, $object, "example.jpg");
// Customize the image style.
$style = "style/oss-pic-style-w-300";
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => $style);
$ossClient->getObject($bucket, $object, $options);
// Delete the sample image.
$ossClient->deleteObject($bucket, $object);
```

- Cascade processing

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket = "<yourBucketName>";
$object = "<yourObjectName>";
$download_file = "download.jpg";
$ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint, false);
// Upload a sample image.
$ossClient->uploadFile($bucket, $object, "example.jpg");
// Perform cascade processing.
$style = "image/resize,m_fixed,w_100,h_100/rotate,90";
$options = array(
    OssClient::OSS_FILE_DOWNLOAD => $download_file,
    OssClient::OSS_PROCESS => $style);
$ossClient->getObject($bucket, $object, $options);
// Delete the sample image.
$ossClient->deleteObject($bucket, $object);
```

Persistent storage of processed images

The following code provides an example on how to save processed images:

```
<? php
if (is_file(__DIR__ . '/../autoload.php')) {
    require_once __DIR__ . '/../autoload.php';
}
if (is_file(__DIR__ . '/../vendor/autoload.php')) {
    require_once __DIR__ . '/../vendor/autoload.php';
}
use OSS\OssClient;
$accessKeyId = "<yourAccessKeyId>";
$accessKeySecret = "<yourAccessKeySecret>";
// The endpoint of the China (Hangzhou) region is used in this example. Specify the actual
endpoint.
$endpoint = "http://oss-cn-hangzhou.aliyuncs.com";
$bucket= "<yourBucketName>";
// Specify the object name.
$object = "<yourObjectName>";
// Specify the object name for the processed image.
$targetObject = "<yourTargetObjectName>";
try{
    $ossClient = new OssClient($accessKeyId, $accessKeySecret, $endpoint);
// The following code provides an example on how to convert the image format of a processed
image. To crop, rotate, or watermark an image, modify the $options parameters.
$options = array(
  OssClient::OSS_PROCESS => "image/format,png"
);
$content = $ossClient->getObject($bucket, $object, $options);
$ossClient->putObject($bucket, $targetObject, $content);
} catch(OssException $e) {
    printf(__FUNCTION__ . ": FAILED\n");
    printf($e->getMessage() . "\n");
    return;
}
print($content);
print(__FUNCTION__ . ": OK" . "\n");
```

6.1.2.3.11. Error handling

OSS SDK for PHP exceptions (OssException) include errors caused by invalid parameters and objects that do not exist. You can use getMessage to obtain an error message.

For more information about OssException, visit GitHub.

Error handling example

The following code provides an example on how to rectify an error and display the error information when you create a bucket that already exists:

```
try {
    $ossClient->createBucket($bucket);
} catch (OssException $e) {
    print("Exception:" . $e->getMessage() . "\n");
}
```

The following table describes the error messages you can obtain.

Parameter	Description
HTTPStatus	The HTTP status code that can be obtained by using getHTTPStatus.
ErrorCode	The error code returned by OSS. The error code can be obtained by using getErrorCode.
ErrorMessage	The error information returned by OSS. The error information can be obtained by using getErrorMessage.
RequestId	The UUID used to uniquely identify the request. If the problem persists, you can provide the request ID of a problem to the OSS development engineers for help. You can obtain the UUID by using getRequestId.
Details	The error information details returned by OSS. You can obtain the error message details by using getDetails.

OSS error codes

Error code	Error message	HTTP status code
AccessDenied	The error message returned because the access is denied.	403
BucketAlreadyExists	The error message returned when the bucket already exists.	409
BucketNotEmpty	The error message returned when the bucket is not empty.	409
EntityTooLarge	The error message returned because the entity exceeds the maximum allowed size.	400
EntityTooSmall	The error message returned because the entity is smaller than the minimum allowed size.	400
FileGroupTooLarge	The error message returned because the object group exceeds the maximum allowed size.	400

Error code	Error message	HTTP status code
FilePartNotExist	The error message returned because the specified part does not exist.	400
FilePartStale	The error message returned because the part has expired.	400
InvalidArgument	The error message returned because the parameter format is invalid.	400
InvalidAccessKeyId	The error message returned because the specified AccessKey ID does not exist.	403
InvalidBucketName	The error message returned because the bucket name is invalid.	400
InvalidDigest	The error message returned because the digest is invalid.	400
InvalidObjectName	The error message returned because the object name is invalid.	400
InvalidPart	The error message returned because the part is invalid.	400
InvalidPartOrder	The error message returned because the part order is invalid.	400
InvalidTargetBucketForLogging	The error message returned because the target bucket specified for logging is invalid.	400
InternalError	The error message returned because an internal OSS error occurs.	500
MalformedXML	The error message returned because the XML format is invalid.	400
MethodNotAllowed	The error message returned because the method is not supported.	405
MissingArgument	The error message returned because a parameter is missing.	411

Error code	Error message	HTTP status code
MissingContentLength	The error message returned because the content length is not specified.	411
NoSuchBucket	The error message returned because the specified bucket does not exist.	404
NoSuchKey	The error message returned because the specified object does not exist.	404
NoSuchUpload	The error message returned because the specified multipart upload ID does not exist.	404
NotImplemented	The error message returned because the method cannot be implemented.	501
PreconditionFailed	The error message returned because a precondition error occurs.	412
RequestTimeTooSkewed	The error message returned because the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes.	403
RequestTimeout	The error message returned because the request times out.	400
SignatureDoesNotMatch	The error message returned because a signature error occurs.	403
InvalidEncryptionAlgorithmError	The error message returned because the specified encryption algorithm based on entropy encoding is invalid.	400

6.1.2.4. C-SDK

6.1.2.4.1. Preface

This topic describes the information about OSS SDK for C.

Compatibility

- For OSS SDK for C V3.*.*: *. compatible.
- For OSS SDK for C V2. *. *.*:
  - Compatible with Windows
  - Compatible with Linux API operations and incompatible with the following linked list (aos_list_t) traversal API operations:
    - aos_list_for_each_entry
    - aos_list_for_each_entry_reverse
    - aos_list_for_each_entry_safe
    - aos_list_for_each_entry_safe_reverse
- For OSS SDK for C V1.*.*: compatible except the following structures and API operations:
  - oss_request_options_t
  - oss_get_object_to_buffer
  - oss_get_object_to_file
  - oss_get_object_to_buffer_by_url
  - oss_get_object_to_file_by_url
  - oss_init_multipart_upload
  - oss_complete_multipart_upload
- For OSS SDK for C V0.0.*: incompatible.

SDK source code

For the source code of OSS SDK for C, visit GitHub.

Sample codes

The OSS SDK for C provides a variety of sample codes for your reference or use. The following table describes the sample codes provided by OSS SDK for C.

Document	Description
oss_put_object_sample	Shows you how to upload objects, including upload objects from the memory, upload objects by using MD5 verification, upload objects with object metadata, and upload objects based on a signed URL.
oss_get_object_sample.c	Shows you how to download objects, including download objects to the memory or local files, range download, and object download based on a signed URL.
oss_append_object_sample.c	Shows you how to perform append upload, including append upload from the memory and append upload from local files.
oss_multipart_upload_sample.c	Shows you how to perform multipart upload, including multipart upload from the memory, multipart upload from local files, and multipart upload cancellation.
oss_resumable_sample.c	Shows you how to perform resumable upload.
oss_head_object_sample.c	Shows you how to query object metadata.

Document	Description
oss_delete_object_sample.c	Shows you how to delete objects, including the deletion of a single object and multiple objects.
oss_callback_sample.c	Shows you how to perform upload callback, including object upload callback and multipart upload callback.
oss_progress_sample.c	Shows you how to use a progress bar during object upload, append upload, multipart upload, and download.
oss_crc_sample.c	Shows you how to perform CRC in object upload and download.
oss_image_sample.c	Shows you how to use Image Processing (IMG).

6.1.2.4.2. Installation

This topic describes how to install OSS SDK for C.

Install OSS SDK for C on Linux

- Install CMake and third-party libraries

  When you install OSS SDK for C on Linux, you must install CMake and the following third-party libraries: cRUL, APR, APR-util, and Mini-XML.

  The following table describes parameters required to install CMake and the third-party libraries.

Parameter	Description	Version
CMake	Manages the build process of software by using a compiler-independent method.	2.6.0 or later
curl	Resolves network issues.	7.32.0 or later
apr-util	Resolves the issues of memory and different platforms.	1.5.2 or later
minixml	Parses the XML data returned by a request.	2.9

  Install CMake and the third-party libraries based on the following systems:

  - Ubuntu and Debian
    - Install CMake

      ```
      sudo apt-get install cmake
      ```

    - Install third-party libraries

      ```
      sudo apt-get install libcurl4-openssl-dev libapr1-dev libaprutil1-dev libmxml-dev
      ```

- RedHat, Aliyun, and CentOS
  - Install CMake

    ```
    sudo yum install cmake
    ```

  - Install third-party libraries

    ```
    sudo yum install curl-devel apr-devel apr-util-devel  mxml mxml-devel
    ```

    If the YUM source does not contain the MXML installation package, use RPM to install MXML. Download the RPM package based on your operating system:

    - 64-bit: MXML-2.9-1.x86_64.rpm
    - 32-bit: MXML-2.9-1.i386.rpm

    Use the RPM package to install MXML:

    ```
    rpm -ivh mxml-2.9-1.x86_64.rpm
    ```

- SuSE
  - Install CMake

    ```
    zypper install cmake
    ```

  - Install third-party libraries

    ```
    zypper install libcurl-devel libapr1-devel libapr-util1-devel mxml-devel
    ```

- Other Linux-based systems
  - Install CMake

    Download CMake, and run the following commands to install CMake:

    ```
    ./configure
    make
    make install
    ```

    > **Note** When you run ./configure, the default installation path is /usr/local/. To specify the installation path, add the -prefix option when you run ./configure.

  - Install libcurl

    Download libcurl, and run the following commands to install libcurl:

    ```
    ./configure
    make
    make install
    ```

  - Install APR

    Download APR, and run the following commands to install APR:

    ```
    ./configure
    make
    make install
    ```

  - Install APR-util

    Download APR-util, and run the following commands to install APR-util:

    ```
    // You must specify the --with-APR option when you install APR-util.
    ./configure --with-apr=/your/apr/install/path
    make
    make install
    ```

  - Install Mini-XML

    > **Note** Use Mini-XML 2.x for installation.

    Download Mini-XML, and run the following commands to install Mini-XML:

    ```
    ./configure
    make
    sudo make install
    ```

- Download the SDK
  - Download directly
  - Download from GitHub
  - Download previous versions
- Install the SDK

- If third-party libraries cRUL, APR, APR-util, and MXML are installed in the default path, run the following commands to install OSS SDK for C:

```
cmake .
make
make install
```

- You can specify a path to which third-party libraries cRUL, APR, APR-util, and MXML are installed. Run the following commands to install OSS SDK for C:

```
cmake -f CMakeLists.txt
// Set the build type to Release. Typical build types include Debug, Release, RelWithDe
bInfo, and MinSizeRel. By default, Debug is used.
-DCMAKE_BUILD_TYPE=Release
// Set the directory to install the SDK.
-DCMAKE_INSTALL_PREFIX=/usr/local/
// Specify the path where third-party libraries cRUL, APR, APR-util, and XML are instal
led.
-DCURL_INCLUDE_DIR=/usr/include/curl
-DCURL_LIBRARY=/usr/lib64/libcurl.so
-DAPR_INCLUDE_DIR=/usr/include/apr-1
-DAPR_LIBRARY=/usr/lib64/libapr-1.so
-DAPR_UTIL_INCLUDE_DIR=/usr/include/apr-1
-DAPR_UTIL_LIBRARY=/usr/lib64/libaprutil-1.so
-DMINIXML_INCLUDE_DIR=/usr/include
-DMINIXML_LIBRARY=/usr/lib64/libmxml.so
// If the 'Could not find APR-config/APR-1-config' error is reported during compilation
, one possible reason is that the APR-1-config file does not exist in the default path.
Add the following options:
-DAPR_CONFIG_BIN=/path/to/bin/apr-1-config
// If the 'Could not find apu-config/apu-1-config' error is reported, add the following
options:
-DAPU_CONFIG_BIN=/path/to/bin/apu-1-config
```

Install OSS SDK for C on Windows

- Download the SDK
  - Download directly
  - Download from GitHub
  - Download previous versions
- Install the SDK

  For more information about how to use Visual Studio to compile OSS SDK for C, visit Use Alibaba Cloud OSS SDK for C on Windows.

  > **Note** If you use Visual Studio 2012 or later, you are prompted to choose whether to upgrade the project version to adapt to the latest versions of the compiler and libraries. We recommend that you use versions that match your project. If the project uses the compiler and libraries of the latest versions, upgrade the project. Otherwise, you do not need to upgrade the project.

6.1.2.4.3. Initialization

You must initialize oss_request_options_t and specify an endpoint to use OSS SDK for C.

You must specify an endpoint when you initialize OSS SDK for C. For more information about endpoints, see Obtain an endpoint.

You must specify an AccessKey pair when you initialize OSS SDK for C. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

Use the OSS domain name to initialize request options

The following code provides an example on how to use the OSS domain name to initialize request options:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters. The second parameter in this function indicates the ow
nership of ctl. By default, the value is 0. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main() {
    aos_pool_t *p;
    oss_request_options_t *options;
    /* Initialize global variables, which are run before the program starts. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        return -1;
    }
    /* Initialize the memory pool and options. */
    aos_pool_create(&p, NULL);
    options = oss_request_options_create(p);
    init_options(options);
    /* The code for logic operations is omitted. */
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(p);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

> **Note** For more information about how to set the request options, see How to set parameters for cRUL-based communication in OSS SDK for C.

Use the custom domain name to initialize request options

The following code provides an example on how to use custom domain name to initialize request options:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourCustomEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
void init_options(oss_request_options_t *options) {
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Enable the CNAME and bind the custom domain name to the bucket. */
    options->config->is_cname = 1;
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main() {
    aos_pool_t *p;
    oss_request_options_t *options;
    /* Initialize global variables, which are run before the program starts. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        return -1;
    }
    /* Initialize the memory pool and options. */
    aos_pool_create(&p, NULL);
    options = oss_request_options_create(p);
    init_options(options);
    /* The code for logic operations is omitted. */
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(p);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Use STS to initialize request options

The following code provides an example on how to use STS to initialize request options:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *sts_token = "<yourSecurityToken>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Configure STS. */
    aos_str_set(&options->config->sts_token, sts_token);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main() {
    aos_pool_t *p;
    oss_request_options_t *options;
    /* Initialize global variables, which are run before the program starts. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        return -1;
    }
    /* Initialize the memory pool and options. */
    aos_pool_create(&p, NULL);
    options = oss_request_options_create(p);
    init_options(options);
    /* The code for logic operations is omitted. */
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(p);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Configure a timeout period

The following code provides an example on how to configure a timeout period:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters. The second parameter in this function indicates the ow
nership of ctl. By default, the value is 0. */
    options->ctl = aos_http_controller_create(options->pool, 0);
    /* Set the connection timeout period. Default value: 10 seconds. */
    options->ctl->options->connect_timeout = 10;
    /* Set the DNS cache timeout period. Default value: 60 seconds. */
    options->ctl->options->dns_cache_timeout = 60;
    /*
    Configure the request timeout period:
    Set the value of speed_limit to specify the minimum acceptable speed. Default value: 1
KB/s.
    Set the value of speed_time to specify the minimum acceptable speed. Default value: 15
seconds.
    The default values indicate that if the transmission speed is continuously smaller than
1 KB/s for 15 consecutive seconds, the request times out.
    */
    options->ctl->options->speed_limit = 1024;
    options->ctl->options->speed_time = 15;
}
```

6.1.2.4.4. Quick start

This topic describes how to use OSS SDK for C to complete routine operations such as bucket creation, object upload, and object download.

Sample projects

- Sample projects for Linux
  i. Download a sample project and decompress it.
  ii. When you install oss-c-sdk-demo-specified-installation, you must specify the installation directory: **/home/your/oss/csdk**. You do not need to specify installation directories for other sample projects because other sample projects are automatically installed based on OSS SDK for C and other dependent third-party libraries.
  iii. Set OSS_ENDPOINT, ACCESS_KEY_ID, ACCESS_KEY_SECRET, and BUCKET_NAME in the sample code to valid values. If OSS SDK for C and the dynamic libraries of the dependent libraries are not in the

system directory, use `LD_LIBRARY_PATH` to specify the directory of OSS SDK for C and the dynamic libraries of the dependent libraries.

iv. Go to the oss-c-sdk-demo-xxx directory. Run `make` to compile the sample project. Run `./main` to run the executable program. To re-compile the project, run `make clean`.

For more information about the sample projects, see Use Alibaba Cloud OSS SDK for C in Linux.

- Sample projects for Windows

i. Download a sample project and decompress it.

For more sample projects, visit GitHub.

ii. Use Visual Studio to open the sample project, and then set the following parameters in the oss_config.c file to valid values: OSS_ENDPOINT, ACCESS_KEY_ID, ACCESS_KEY_SECRET, BUCKET_NAME, OBJECT_NAME, MULTIPART_UPLOAD_FILE_PATH, and DIR_NAME. Compile and run the project. You can develop your own project based on the sample project.

> **Note** For more information about how to use Visual Studio, see Use Alibaba Cloud OSS SDK for C in Windows.

Create a bucket

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
```

```
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Create the bucket. */
    aos_status_t *resp_status;
    aos_table_t *resp_headers;
    oss_acl_e oss_acl = OSS_ACL_PRIVATE;
    aos_string_t bucket;
    /* Assign the char* data to the bucket. */
    aos_str_set(&bucket, bucket_name);
    resp_status = oss_create_bucket(oss_client_options, &bucket, oss_acl, &resp_headers);
    /* Determine whether the bucket is created. */
    if (aos_status_is_ok(resp_status)) {
        printf("create bucket succeeded\n");
    } else {
        printf("create bucket failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Upload objects

The following code provides an example on how to upload objects to OSS by using stream upload:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
```

```
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_status_t *resp_status;
    aos_table_t *headers;
    aos_table_t *resp_headers;
    aos_list_t buffer;
    aos_buf_t *content = NULL;
    const char *data = "More than just cloud.";
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    headers = aos_table_make(pool, 0);
    /* Convert char* data to aos_list_t. */
    aos_list_init(&buffer);
    content = aos_buf_pack(oss_client_options->pool, data, strlen(data));
    aos_list_add_tail(&content->node, &buffer);
    /* Upload the object. */
    resp_status = oss_put_object_from_buffer(oss_client_options, &bucket, &object, &buffer,
headers, &resp_headers);
    /* Determine whether the upload request is successful. */
    if (aos_status_is_ok(resp_status)) {
        printf("put file succeeded\n");
    } else {
        printf("put file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Download objects

The following code provides an example on how to download a specified object to a local file:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *download_filename = "<yourDownloadedFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_status_t *resp_status;
    aos_table_t *headers = NULL;
    aos_table_t *params = NULL;
    aos_table_t *resp_headers = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
```

```
    aos_str_set(&object, object_name);
    aos_str_set(&file, download_filename);
    headers = aos_table_make(pool, 0);
    /* Download the object. */
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers, par
ams, &file, &resp_headers);
    /* Determine whether the download request is successful. */
    if (aos_status_is_ok(resp_status)) {
        printf("get object to local file succeeded\n");
    } else {
        printf("get object to local file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

List objects

The following code provides an example on how to list objects in a specified bucket.

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool = NULL;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
```

```
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options = NULL;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    /* List objects. */
    resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
    /* Determine whether the list request is successful. */
    if (! aos_status_is_ok(resp_status))
    {
        printf("list object failed\n");
    }
    else{
        /* Display the objects. */
        printf("Object\tSize\tLastModified\n");
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list, n
ode) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->key.
data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        printf("Total %d\n", size);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete objects

The following code provides an example on how to delete an object:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
```

```
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool = NULL;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options = NULL;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_status_t *resp_status = NULL;
    aos_table_t *resp_headers = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Delete the object. */
    resp_status = oss_delete_object(oss_client_options, &bucket, &object, &resp_headers);
    /* Determine whether the object is deleted. */
    if (aos_status_is_ok(resp_status)) {
        printf("delete object succeeded\n");
    } else {
        printf("delete object failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
```

```
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5. Buckets

6.1.2.4.5.1. Create buckets

A bucket is a container used to store objects in Object Storage Service (OSS). Each object is contained in a bucket. This topic describes how to create a bucket.

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t *pool is equivalent to apr_pool_t.
The code to create a memory pool is included in the apr library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
```

```
    aos_string_t bucket;
    oss_acl_e oss_acl = OSS_ACL_PRIVATE;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign the char* data to the aos_string_t bucket. */
    aos_str_set(&bucket, bucket_name);
    /* Create the bucket. */
    resp_status = oss_create_bucket(oss_client_options, &bucket, oss_acl, &resp_headers);
    /* Determine whether the bucket is created. */
    if (aos_status_is_ok(resp_status)) {
        printf("create bucket succeeded\n");
    } else {
        printf("create bucket failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

The following code provides an example on how to set the ACL of a bucket when you create the bucket:

```
    /* Create a bucket and set the ACL of the bucket to public read (the default ACL is pri
vate). */
    resp_status = oss_create_bucket(oss_client_options, &bucket, OSS_ACL_PUBLIC_READ, &resp
_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("create bucket succeeded\n");
    } else {
        printf("create bucket failed\n");
    }
```

6.1.2.4.5.2. List buckets

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
```

```
    /* Configure network parameters such as the timeout period. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t *pool is equivalent to apr_pool_t.
The code to create a memory pool is included in the apr library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_list_buckets_params_t *params = NULL;
    oss_list_bucket_content_t *content = NULL;
    int size = 0;
    params = oss_create_list_buckets_params(pool);
    /* List the buckets. */
    resp_status = oss_list_bucket(oss_client_options, params, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("list buckets succeeded\n");
    } else {
        printf("list buckets failed\n");
    }
    /* Display the list of buckets. */
    aos_list_for_each_entry(oss_list_bucket_content_t, content, &params->bucket_list, node)
{
        printf("BucketName: %s\n", content->name.data);
        ++size;
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.3. Manage bucket ACLs

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to configure and query the access control list (ACL) of a bucket.

Configure ACL for a bucket

The following table describes the bucket ACLs.

ACL	Description	Value
Private	Only the owner or authorized users of the bucket can read and write the object.	OSS_ACL_PRIVATE
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	OSS_ACL_PUBLIC_READ
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	OSS_ACL_PUBLIC_READ_WRITE

The following code provides an example on how to configure the ACL of a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
```

```
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign char* data to the aos_string_t bucket. */
    aos_str_set(&bucket, bucket_name);
    /* Set the ACL of the bucket to public read (OSS_ACL_PUBLIC_READ).
    resp_status = oss_put_bucket_acl(oss_client_options, &bucket, OSS_ACL_PUBLIC_READ, &res
p_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("set bucket acl succeeded\n");
    } else {
        printf("set bucket acl failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Query the ACL of a bucket

The following code provides an example on how to query the ACL of a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
```

```
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion, such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t oss_acl;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign char* data to the aos_string_t bucket. */
    aos_str_set(&bucket, bucket_name);
    /* Query the ACL of the bucket. */
    resp_status = oss_get_bucket_acl(oss_client_options, &bucket, &oss_acl, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket acl succeeded : %s \n", oss_acl.data);
    } else {
        printf("get bucket acl failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.4. Delete buckets

Note Before you delete a bucket, you must delete all objects in the bucket and parts generated by multipart upload.

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t *pool is equivalent to apr_pool_t.
The code to create a memory pool is included in the apr library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign the char* data to the aos_string_t bucket. */
    aos_str_set(&bucket, bucket_name);
    /* Delete the bucket. */
    resp_status = oss_delete_bucket (oss_client_options, &bucket, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("delete bucket succeeded\n");
    } else {
        printf("delete bucket failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
```

```
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.5. Manage lifecycle rules

Object Storage Service (OSS) allows you to configure lifecycle rules to delete expired objects and parts or convert the storage class of expired objects to Infrequent Access (IA) or Archive to reduce your storage costs. This topic describes how to manage lifecycle rules for buckets.

Background

Each lifecycle rule contains the following information:

- Policy: specifies the mode to match objects and parts.
  - Match by prefix: matches objects and parts by prefix. You can create multiple rules to configure different prefixes. Each prefix must be unique.
  - Match by bucket: matches all objects and parts contained in the bucket. You can create only one rule if you select this method.
- Object lifecycle policy: specifies the validity period or expiration data and the operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired objects are deleted.
  - Expiration date: specifies a date. Objects that are last modified before this date expire and are deleted.
- Part lifecycle policy: specifies the validity period or expiration time and the delete operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired parts are deleted.
  - Expiration date: specifies a date. Parts that are last modified before this date expire and are deleted.

Lifecycle rules also apply to the parts uploaded by using uploadPart. In this case, the last modified time of an object is the time the multipart upload task is initiated.

Configure lifecycle rules

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
```

```
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion, such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_list_t lifecycle_rule_list;
    /* Create lifecycle rules for the bucket. */
    aos_str_set(&bucket, bucket_name);
    aos_list_init(&lifecycle_rule_list);
    /* Specify the validity period. */
    oss_lifecycle_rule_content_t *rule_content_days = oss_create_lifecycle_rule_content(poo
l);
    aos_str_set(&rule_content_days->id, "rule-1");
    aos_str_set(&rule_content_days->prefix, "obsoleted");
    aos_str_set(&rule_content_days->status, "Enabled");
    rule_content_days->days = 3;
    aos_list_add_tail(&rule_content_days->node, &lifecycle_rule_list);
    /* Specify the expiration date. */
    oss_lifecycle_rule_content_t *rule_content_date = oss_create_lifecycle_rule_content(poo
l);
    aos_str_set(&rule_content_date->id, "rule-2");
    aos_str_set(&rule_content_date->prefix, "delete");
    aos_str_set(&rule_content_date->status, "Enabled");
    aos_str_set(&rule_content_date->date, "2022-10-11T00:00:00.000Z");
    aos_list_add_tail(&rule_content_date->node, &lifecycle_rule_list);
    /* Configure the lifecycle rules. */
```

```
    resp_status = oss_put_bucket_lifecycle(oss_client_options, &bucket, &lifecycle_rule_lis
t, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("put bucket lifecycle succeeded\n");
    } else {
        printf("put bucket lifecycle failed, code:%d, error_code:%s, error_msg:%s, request_
id:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

View lifecycle rules

The following code provides an example on how to query the lifecycle rules configured for the bucket named examplebucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
```

```
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_list_t lifecycle_rule_list;
    oss_lifecycle_rule_content_t *rule_content;
    char *rule_id;
    char *prefix;
    char *status;
    int days = INT_MAX;
    char* date = "";
    aos_str_set(&bucket, bucket_name);
    /* Query and display the lifecycle rules configured for the bucket. */
    aos_list_init(&lifecycle_rule_list);
    resp_status = oss_get_bucket_lifecycle(oss_client_options, &bucket, &lifecycle_rule_lis
t, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket lifecycle succeeded\n");
        aos_list_for_each_entry(oss_lifecycle_rule_content_t, rule_content, &lifecycle_rule
_list, node) {
            rule_id = apr_psprintf(pool, "%.*s", rule_content->id.len, rule_content->id.dat
a);
            prefix = apr_psprintf(pool, "%.*s", rule_content->prefix.len, rule_content->pre
fix.data);
            status = apr_psprintf(pool,"%.*s", rule_content->status.len, rule_content->stat
us.data);
            date = apr_psprintf(pool, "%.*s", rule_content->date.len, rule_content->date.da
ta);
            days = rule_content->days;
        }
        printf("rule_id: %s \n", rule_id);
        printf("prefix: %s \n", prefix);
        printf("status: %s \n", status);
        printf("date: %s \n", date);
        printf("days: %d \n", days);
    } else {
        printf("get bucket lifecycle failed, code:%d, error_code:%s, error_msg:%s, request_
id:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
```

```
    return 0;
}
```

Delete lifecycle rules

The following code provides an example on how to delete lifecycle rules configured for the bucket named examplebucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    /* Delete the lifecycle rules configured for the bucket. */
    aos_str_set(&bucket, bucket_name);
```

```
    resp_status = oss_delete_bucket_lifecycle(oss_client_options, &bucket, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("delete bucket lifecycle succeeded\n");
    } else {
        printf("delete bucket lifecycle failed, code:%d, error_code:%s, error_msg:%s, reque
st_id:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.6. CORS

Cross-origin resource sharing (CORS) allows web applications to access resources that belong to different regions. OSS provides CORS operations to facilitate cross-origin access control.

Configure CORS rules

Run the following code to configure CORS rules for a specified bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
```

```
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_list_t cors_rule_list;
    oss_cors_rule_t *cors_rule1 = NULL, *cors_rule2 = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_list_init(&cors_rule_list);
    cors_rule1 = oss_create_cors_rule(pool);
    aos_list_add_tail(&cors_rule1->node, &cors_rule_list);
    oss_create_sub_cors_rule(pool, &cors_rule1->allowed_origin_list, "allowed_origin_1_1");
    oss_create_sub_cors_rule(pool, &cors_rule1->allowed_origin_list, "allowed_origin_1_1");
    oss_create_sub_cors_rule(pool, &cors_rule1->allowed_method_list, "PUT");
    oss_create_sub_cors_rule(pool, &cors_rule1->allowed_method_list, "GET");
    oss_create_sub_cors_rule(pool, &cors_rule1->allowed_head_list, "Authorization");
    oss_create_sub_cors_rule(pool, &cors_rule1->expose_head_list, "expose_head_1_1");
    oss_create_sub_cors_rule(pool, &cors_rule1->expose_head_list, "expose_head_1_1");
    cors_rule2 = oss_create_cors_rule(pool);
    aos_list_add_tail(&cors_rule2->node, &cors_rule_list);
    oss_create_sub_cors_rule(pool, &cors_rule2->allowed_origin_list, "allowed_origin_2_1");
    oss_create_sub_cors_rule(pool, &cors_rule2->allowed_origin_list, "allowed_origin_2_2");
    oss_create_sub_cors_rule(pool, &cors_rule2->allowed_method_list, "PUT");
    oss_create_sub_cors_rule(pool, &cors_rule2->allowed_method_list, "GET");
    oss_create_sub_cors_rule(pool, &cors_rule2->allowed_head_list, "Authorization");
    oss_create_sub_cors_rule(pool, &cors_rule2->expose_head_list, "expose_head_2_1");
    oss_create_sub_cors_rule(pool, &cors_rule2->expose_head_list, "expose_head_2_2");
    /* Configure the CORS rules. */
    resp_status = oss_put_bucket_cors(oss_client_options, &bucket, &cors_rule_list, &resp_h
eaders);
    if (aos_status_is_ok(resp_status)) {
        printf("put bucket cors succeeded\n");
    } else {
        printf("put bucket cors failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Query CORS rules

Run the following code to obtain CORS rules:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_list_t cors_rule_list;
    oss_cors_rule_t *cors_rule = NULL;
    oss_sub_cors_rule_t *sub_cors_rule = NULL;
    aos_str_set(&bucket, bucket_name);
    /* Query the CORS rules. */
    aos_list_init(&cors_rule_list);
    resp_status = oss_get_bucket_cors(oss_client_options, &bucket, &cors_rule_list, &resp_h
eaders);
```

```
eaders);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket cors succeeded\n");
        aos_list_for_each_entry(oss_cors_rule_t, cors_rule, &cors_rule_list, node) {
            printf("max_age_seconds: %d\n", cors_rule->max_age_seconds);
            aos_list_for_each_entry(oss_sub_cors_rule_t, sub_cors_rule, &cors_rule->allowed
_origin_list, node) {
                printf("allowed_origin_list: %s \n", sub_cors_rule->rule.data);
            }
            aos_list_for_each_entry(oss_sub_cors_rule_t, sub_cors_rule, &cors_rule->allowed
_method_list, node) {
                printf("allowed_method_list: %s \n", sub_cors_rule->rule.data);
            }
            aos_list_for_each_entry(oss_sub_cors_rule_t, sub_cors_rule, &cors_rule->allowed
_head_list, node) {
                printf("allowed_head_list: %s \n", sub_cors_rule->rule.data);
            }
            aos_list_for_each_entry(oss_sub_cors_rule_t, sub_cors_rule, &cors_rule->expose_
head_list, node) {
                printf("expose_head_list: %s \n", sub_cors_rule->rule.data);
            }
        }
    } else {
        printf("get bucket cors failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete CORS rules

Run the following code to delete all CORS rules for the specified bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
```

```
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    /* Delete the CORS rules. */
    resp_status = oss_delete_bucket_cors(oss_client_options, &bucket, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket cors succeeded\n");
    } else {
        printf("get bucket cors failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.7. Configure logging

You can enable logging to record access to a bucket in log objects, which are stored in a specified bucket.

The name of log objects is in the following format: `<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString`.

Enable logging

Run the following code to enable bucket access logging:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *target_bucket_name = "<yourTargetBucketName>";
const char *target_logging_prefix = "<yourTargetPrefix>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize parameters. */
    aos_string_t bucket;
    oss_logging_config_content_t *content;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    content = oss_create_logging_rule_content(pool);
    aos_str_set(&content->target_bucket, target_bucket_name);
    aos_str_set(&content->prefix, target_logging_prefix);
    /* Enable logging for the bucket. */
    resp_status = oss_put_bucket_logging(oss_client_options, &bucket, content, &resp_header
s);
    if (aos_status_is_ok(resp_status)) {
```

```
        printf("put symlink succeeded\n");
    } else {
        printf("put symlink failed, code:%d, error_code:%s, error_msg:%s, request_id:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

View logging configurations

Run the following code to view the access logging configurations for a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
```

```
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    oss_logging_config_content_t *content;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    content = oss_create_logging_rule_content(pool);
    /* View logging configurations of the bucket. */
    resp_status = oss_get_bucket_logging(oss_client_options, &bucket, content, &resp_header
s);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket logging succeeded\n");
    } else {
        printf("get bucket logging failed, code:%d, error_code:%s, error_msg:%s, request_id
:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    printf("bucket:%s, prefix:%s\n", content->target_bucket.data, content->prefix.data);
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Disable logging

Run the following code to disable access logging for a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
```

```
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    /* Disable logging. */
    resp_status = oss_delete_bucket_logging(oss_client_options, &bucket, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("delete bucket logging succeeded\n");
    } else {
        printf("delete bucket logging failed, code:%d, error_code:%s, error_msg:%s, request
_id:%s\n",
            resp_status->code, resp_status->error_code, resp_status->error_msg, resp_status
->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.8. Configure hotlink protection

OSS provides hotlink protection to prevent unauthorized domain names from accessing your OSS data. You can configure the Referer field in the HTTP header.

To configure hotlink protection, you must configure the following parameters:

- Referer Whitelist: Only specified domain names are allowed to access OSS resources.
- Allow Empty Referer: If you do not allow empty Refer fields, a request is allowed to access OSS resources only if the request includes the Referer field configured in the HTTP or HTTPS header.

Configure hotlink protection

Run the following code to configure the referer whitelist:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_referer_config_t referer_config;
    aos_str_set(&bucket, bucket_name);
    aos_list_init(&referer_config.referer_list);
    oss_create_and_add_refer(pool, &referer_config, "http://www.aliyun.com");
    oss_create_and_add_refer(pool, &referer_config, "https://www.aliyun.com");
    referer_config.allow_empty_referer = 0;
    /* Add a Referer whitelist. You can use an asterisk (*) or a question mark (?) as a wil
dcard character to set the Referer parameter. */
```

```
wildcard character to set the Referer parameter. */
    resp_status = oss_put_bucket_referer(oss_client_options, &bucket, &referer_config, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("put bucket referer succeeded\n");
    } else {
        printf("put bucket referer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Query hotlink protection information

Run the following code to obtain a referer whiltelist:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The code used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration information such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
```

```
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_referer_config_t referer_config;
    oss_referer_t *referer;
    aos_str_set(&bucket, bucket_name);
    aos_list_init(&referer_config.referer_list);
    /* Query the Referer whitelist of the bucket. */
    resp_status = oss_get_bucket_referer(oss_client_options, &bucket, &referer_config, &res
p_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket referer succeeded\n");
        aos_list_for_each_entry(oss_referer_t, referer, &referer_config.referer_list, node)
{
            printf("get referer %s\n", referer->referer.data);
        }
    } else {
        printf("get bucket referer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete hotlink protection configurations

Run the following code to clear a referer whitelist:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
```

```
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_referer_config_t referer_config;
    aos_str_set(&bucket, bucket_name);
    aos_list_init(&referer_config.referer_list);
    referer_config.allow_empty_referer = 1;
    /* You cannot clear hotlink protection configurations directly. To delete hotlink prote
ction configurations, you must create a rule that allows an empty Referer field to replace
the existing rule. */
    resp_status = oss_put_bucket_referer(oss_client_options, &bucket, &referer_config, &res
p_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("delete bucket referer succeeded\n");
    } else {
        printf("delete bucket referer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.5.9. Configure static website hosting

You can set the static website hosting mode for your bucket. After configurations take effect, you can use the bucket domain name to access this static website and be redirected to a specified index page or error page.

Configure static website hosting

Run the following code to configure static website hosting:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_website_config_t website_config;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&website_config.suffix_str, "index.html");
    aos_str_set(&website_config.key_str, "error.html");
```

```
    /* Configure static web hosting: The index page is index.html and the error page is err
or.html. */
    resp_status = oss_put_bucket_website(oss_client_options, &bucket, &website_config, &res
p_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("put bucket website succeeded\n");
    } else {
        printf("put bucket website failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

View static website hosting configurations

Run the following code to view static website hosting configurations:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
```

```
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_website_config_t website_config;
    aos_str_set(&bucket, bucket_name);
    /* View the static website hosting configurations. */
    resp_status = oss_get_bucket_website(oss_client_options, &bucket, &website_config, &res
p_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get bucket website succeeded\n");
        printf("website_config: %s  %s \n", website_config.suffix_str.data, website_config.
key_str.data);
    } else {
        printf("get bucket website failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete static website hosting configurations

Run the following code to delete static website hosting configurations:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
```

```
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The code used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration information such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    /* Delete the static website hosting configurations. */
    resp_status = oss_delete_bucket_website(oss_client_options, &bucket, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("delete bucket website succeeded\n");
    } else {
        printf("delete bucket website failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.6. Upload objects

6.1.2.4.6.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for C provides a variety of methods to upload objects.

You can upload an object to OSS by using one of the following methods:

- Simple upload: includes streaming upload and object upload. You can use this method to upload an object up to 5 GB in size.
- Append upload: uploads an object up to 5 GB in size.

- Resumable upload: supports concurrent upload and resumable upload, and you can define the size of each part. This method is suitable for the upload of large objects. You can use this method to upload an object up to 48.8 TB in size.
- Multipart upload: supports the upload of an object up to 48.8 TB in size. This method is suitable for the upload of large objects.

During object upload, you can configure object metadata and view upload progress by using progress bars. For more information about progress bar, see Use progress bars. After the object is uploaded, you can perform upload callback. For more information about upload callback, see Upload callback.

6.1.2.4.6.2. Simple upload

This topic describes how to use simple upload.

For the complete code that is used to perform simple upload, visit GitHub.

Upload data from memory

The following code provides an example on how to upload data from memory:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *object_content = "More than just cloud.";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
```

```
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_list_t buffer;
    aos_buf_t *content = NULL;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_list_init(&buffer);
    content = aos_buf_pack(oss_client_options->pool, object_content, strlen(object_content)
);
    aos_list_add_tail(&content->node, &buffer);
    /* Upload the object. */
    resp_status = oss_put_object_from_buffer(oss_client_options, &bucket, &object, &buffer,
headers, &resp_headers);
    /* Determine whether the object is uploaded. */
    if (aos_status_is_ok(resp_status)) {
        printf("put object from buffer succeeded\n");
    } else {
        printf("put object from buffer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Upload a local file

The following code provides an example on how to upload a local file to OSS:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
```

```
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    /* Upload the object. */
    resp_status = oss_put_object_from_file(oss_client_options, &bucket, &object, &file, hea
ders, &resp_headers);
    /* Determine whether the object is uploaded. */
    if (aos_status_is_ok(resp_status)) {
        printf("put object from file succeeded\n");
    } else {
        printf("put object from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

FAQ: How can I upload objects whose names contain Chinese characters?

On Windows systems, you can use UTF-8 to encode the object names that contain Chinese characters and upload the object. The following code provides an example on how to upload objects whose names contain Chinese characters:

```
#include "oss_api.h"
#include "aos_http_io.h"
#include <wchar.h>
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename_ch = "c:\\测试.txt";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
char* multibyte_to_utf8(const char * ch, char *str, int size)
{
    if (! ch || ! str || size <= 0)
        return NULL;
    int chlen = strlen(ch);
    int multi_byte_cnt = 0;
    for (int i = 0; i < chlen - 1; i++) {
        if ((ch[i] & 0x80) && (ch[i + 1] & 0x80)) {
            i++;
            multi_byte_cnt++;
        }
    }
    if (multi_byte_cnt == 0)
        return ch;
    int len = MultiByteToWideChar(CP_ACP, 0, ch, -1, NULL, 0);
    if (len <= 0)
        return NULL;
    wchar_t *wch = malloc(sizeof(wchar_t) * (len + 1));
    if (! wch)
        return NULL;
    wmemset(wch, 0, len + 1);
    MultiByteToWideChar(CP_ACP, 0, ch, -1, wch, len);
    len = WideCharToMultiByte(CP_UTF8, 0, wch, -1, NULL, 0, NULL, NULL);
```

```
    if ((len <= 0) || (size < len + 1)) {
        free(wch);
        return NULL;
    }
    memset(str, 0, len + 1);
    WideCharToMultiByte(CP_UTF8, 0, wch, -1, str, len, NULL, NULL);
    free(wch);
    return str;
}
int main(int argc, char argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as networks
and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The co
de used to create a memory pool is included in the APR library. */
    aos_pool_t pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that the
pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Use UTF-8 to encode the object names that contain multibyte Chinese characters */
    char local_filename_buf[1024];
    char * local_filename = multibyte_to_utf8(local_filename_ch, local_filename_buf, 1024);
    aos_str_set(&file, local_filename);
    /* Upload the object. */
    resp_status = oss_put_object_from_file(oss_client_options, &bucket, &object, &file, hea
ders, &resp_headers);
    /* Determine whether the object is uploaded. */
    if (aos_status_is_ok(resp_status)) {
        printf("put object from file succeeded\n");
    } else {
        printf("put object from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request. *
/
    aos_pool_destroy(pool);
```

```
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.6.3. Append upload

You can append strings and files during append upload. You cannot perform CopyObject for append objects.

> **Note** You cannot perform CopyObject for append objects.

Append data from memory

The following code provides an example on how to append data from memory:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *object_content = "More than just cloud.";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
```

```
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_list_t buffer;
    int64_t position = 0;
    char *next_append_position = NULL;
    aos_buf_t *content = NULL;
    aos_table_t *headers1 = NULL;
    aos_table_t *headers2 = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    headers1 = aos_table_make(pool, 0);
    /* Obtain the position where the object is appended for the first time. */
    resp_status = oss_head_object(oss_client_options, &bucket, &object, headers1, &resp_hea
ders);
    if (aos_status_is_ok(resp_status)) {
        next_append_position = (char*)(apr_table_get(resp_headers, "x-oss-next-append-posit
ion"));
        position = atoi(next_append_position);
    }
    /* Append the object. */
    headers2 = aos_table_make(pool, 0);
    aos_list_init(&buffer);
    content = aos_buf_pack(pool, object_content, strlen(object_content));
    aos_list_add_tail(&content->node, &buffer);
    resp_status = oss_append_object_from_buffer(oss_client_options, &bucket, &object, posit
ion, &buffer, headers2, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("append object from buffer succeeded\n");
    } else {
        printf("append object from buffer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Append data from a local file

The following code provides an example on how to append data from a local file:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
```

```
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    int64_t position = 0;
    char *next_append_position = NULL;
    aos_table_t *headers1 = NULL;
    aos_table_t *headers2 = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    /* Obtain the position where the object is appended for the first time. */
    resp_status = oss_head_object(oss_client_options, &bucket, &object, headers1, &resp_hea
ders);
    if(aos_status_is_ok(resp_status)) {
```

```
    if(aos_status_is_ok(resp_status)) {
        next_append_position = (char*)(apr_table_get(resp_headers, "x-oss-next-append-posit
ion"));
        position = atoi(next_append_position);
    }
    /* Append the object. */
    resp_status = oss_append_object_from_file(oss_client_options, &bucket, &object, positio
n, &file, headers2, &resp_headers);
    /* Determine whether the append upload is successful. */
    if (aos_status_is_ok(resp_status)) {
        printf("append object from file succeeded\n");
    } else {
        printf("append object from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.6.4. Resumable upload

If the system stops responding during multipart upload, you can resume the upload by using the ListMultipartUploads and ListParts operations to retrieve all multipart upload tasks on an object and list the uploaded parts in each task. This method allows an upload task to be resumed from the last uploaded part.

Current upload progress is recorded into a checkpoint file during the upload. If a part fails to be uploaded during the process, the object is uploaded from the part recorded in the checkpoint file when the upload restarts, that is, the resumable upload. After the upload is complete, the checkpoint is deleted.

You can use `oss_resumable_clt_params_t` to perform resumable upload. The following table describes the parameters you can configure for this method.

Parameter	Description
thread_num	The number of concurrent threads. Default value: 1.
enable_checkpoint	Specifies whether to enable resumable upload. By default, resumable upload is disabled.
partSize	The size of each part. The part size ranges from 100 KB to 5 GB.
checkpoint_path	The path of the checkpoint file. Default value: {upload_file_path}.cp.

You can run the following code to perform resumable upload:

```
#include "oss_api.h"
#include "aos_http_io.h"
```

```
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_list_t resp_body;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_resumable_clt_params_t *clt_params;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    aos_list_init(&resp_body);
    /* Start resumable upload. */
    clt_params = oss_create_resumable_clt_params_content(pool, 1024 * 100, 3, AOS_TRUE, NUL
```

```
L);
    resp_status = oss_resumable_upload_file(oss_client_options, &bucket, &object, &file, he
aders, NULL, clt_params, NULL, &resp_headers, &resp_body);
    if (aos_status_is_ok(resp_status)) {
        printf("resumable upload succeeded\n");
    } else {
        printf("resumable upload failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.6.5. Multipart upload

OSS allows you to use multipart upload to split an object into several parts and upload them separately. After all parts are uploaded, you can combine the uploaded parts into a complete object to complete the upload.

To implement multipart upload, perform the following operations:

1. Initiate a multipart upload task.

   Call the ossClient.initiateMultipartUpload method to obtain a unique upload ID in OSS.

2. Upload the parts.

   Call the ossClient.uploadPart method to upload the parts.

   > **Note**
   > - Part numbers identify the relative positions of parts in an object that share the same upload ID. If you have uploaded a part and used its part number again to upload another part, the latter part overwrites the former part.
   > - OSS includes the MD5 hash of part data in the ETag header and returns the MD5 hash to the user.
   > - OSS calculates the MD5 hash of uploaded data and compares it with the MD5 hash calculated by the SDK. If the two hashes are different, the InvalidDigest error code is returned.

3. Complete the multipart upload task.

   After all parts are uploaded, call the ossClient.completeMultipartUpload method to combine these parts into a complete object.

The following code provides an example on how to perform multipart upload:

```
#include "oss_api.h"
#include "aos_http_io.h"
#include <sys/stat.h>
const char *endpoint = "<yourEndpoint>";
const char *access key id = "<yourAccessKeyId>";
```

```
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int64_t get_file_size(const char *file_path)
{
    int64_t filesize = -1;
    struct stat statbuff;
    if(stat(file_path, &statbuff) < 0){
        return filesize;
    } else {
        filesize = statbuff.st_size;
    }
    return filesize;
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    oss_upload_file_t *upload_file = NULL;
    aos_string_t upload_id;
    aos_table_t *headers = NULL;
```

```
    aos_table_t *complete_headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_null(&upload_id);
    headers = aos_table_make(p, 1);
    complete_headers = aos_table_make(p, 1);
    int part_num = 1;
    /* Initiate a multipart upload task and obtain an upload ID. */
    resp_status = oss_init_multipart_upload(oss_client_options, &bucket, &object, &upload_i
d, headers, &resp_headers);
    /* Determine whether the multipart upload task is initiated. */
    if (aos_status_is_ok(resp_status)) {
        printf("Init multipart upload succeeded, upload_id:%.*s\n",
               upload_id.len, upload_id.data);
    } else {
        printf("Init multipart upload failed, upload_id:%.*s\n",
               upload_id.len, upload_id.data);
    }
    /* Upload the parts. */
    int64_t file_length = 0;
    int64_t pos = 0;
    file_length = get_file_size(local_filename);
    while(pos < file_length) {
        upload_file = oss_create_upload_file(pool);
        aos_str_set(&upload_file->filename, local_filename);
        upload_file->file_pos = pos;
        pos += 100 * 1024;
        upload_file->file_last = pos < file_length ? pos : file_length;
        resp_status = oss_upload_part_from_file(oss_client_options, &bucket, &object, &uplo
ad_id, part_num++, upload_file, &resp_headers);
        if (aos_status_is_ok(resp_status)) {
            printf("Multipart upload part from file succeeded\n");
        } else {
            printf("Multipart upload part from file failed\n");
        }
    }
    oss_list_upload_part_params_t *params = NULL;
    aos_list_t complete_part_list;
    /* Query the uploaded parts. */
    params = oss_create_list_upload_part_params(pool);
    params->max_ret = 1000;
    aos_list_init(&complete_part_list);
    resp_status = oss_list_upload_part(oss_client_options, &bucket, &object, &upload_id, pa
rams, &resp_headers);
    /* Determine whether all parts are listed. */
    if (aos_status_is_ok(resp_status)) {
        printf("List multipart succeeded\n");
    } else {
        printf("List multipart failed\n");
    }
    oss_complete_part_content_t *complete_part_content = NULL;
    oss_list_part_content_t *part_content = NULL;
```

```
    aos_list_for_each_entry(oss_list_part_content_t, part_content, &params->part_list, node
) {
        complete_part_content = oss_create_complete_part_content(pool);
        aos_str_set(&complete_part_content->part_number, part_content->part_number.data);
        aos_str_set(&complete_part_content->etag, part_content->etag.data);
        aos_list_add_tail(&complete_part_content->node, &complete_part_list);
    }
    /* Complete the multipart upload task. */
    resp_status = oss_complete_multipart_upload(oss_client_options, &bucket, &object, &uplo
ad_id,
            &complete_part_list, complete_headers, &resp_headers);
    /* Determine whether the multipart upload task is complete. */
    if (aos_status_is_ok(resp_status)) {
        printf("Complete multipart upload from file succeeded, upload_id:%.*s\n",
               upload_id.len, upload_id.data);
    } else {
        printf("Complete multipart upload from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Note Query the uploaded parts. You must provide the ETag value of each part to call the oss_complete_multipart_upload operation. You can use one of the following method to obtain the ETag values: First, the response of a part upload contains the ETag value of the part. You can save the values for future use. Second, you can call the oss_list_upload_part operation to query the ETag values of the uploaded parts. In this example, the second method is used.

Cancel a multipart upload task

The following code provides an example on how to cancel a multipart upload task:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
```

```
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t upload_id;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_null(&upload_id);
    /* Initiate a multipart upload task and obtain an upload ID. */
    resp_status = oss_init_multipart_upload(oss_client_options, &bucket, &object, &upload_i
d, headers, &resp_headers);
    /* Determine whether the multipart upload task is initiated. */
    if (aos_status_is_ok(resp_status)) {
        printf("Init multipart upload succeeded, upload_id:%.*s\n",
               upload_id.len, upload_id.data);
    } else {
        printf("Init multipart upload failed, upload_id:%.*s\n",
               upload_id.len, upload_id.data);
    }
    /* Cancel the multipart upload task. */
    resp_status = oss_abort_multipart_upload(oss_client_options, &bucket, &object, &upload_
id, &resp_headers);
    /* Determine whether the multipart upload task is canceled. */
    if (aos_status_is_ok(resp_status)) {
        printf("Abort multipart upload succeeded, upload_id::%.*s\n",
               upload_id.len, upload_id.data);
    } else {
        printf("Abort multipart upload failed\n");
    }
```

```
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Note If a multipart upload task is canceled, the upload ID can no longer be used to upload any parts. The parts uploaded by using that upload ID are also deleted.

6.1.2.4.6.6. Use progress bars

Progress bars are used to indicate the progress of an upload or download.

For the complete code of upload progress bars, visit GitHub.

The following code uses PutObject as an example to show you how to view progress information:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
void percentage(int64_t consumed_bytes, int64_t total_bytes)
{
    assert(total_bytes >= consumed_bytes);
    printf("%%%" APR_INT64_T_FMT "\n", consumed_bytes * 100 / total_bytes);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
```

```
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_list_t resp_body;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    /* View the upload progress information when you upload an object. */
    resp_status = oss_do_put_object_from_file(oss_client_options, &bucket, &object, &file,
NULL, NULL, percentage, &resp_headers, &resp_body);
    if (aos_status_is_ok(resp_status)) {
        printf("put object from file succeeded\n");
    } else {
        printf("put object from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

You cannot use progress bars when you use oss_put_object_from_file and oss_put_object_from_buffer.

6.1.2.4.6.7. Upload callback

This topic describes how to use upload callback.

For the complete code used to implement upload callback, visit GitHub.

The following code provides an example on how to use upload callback:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access key secret = "<yourAccessKeySecret>";
```

```
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *object_content = "More than just cloud.";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    aos_pool_t *p = NULL;
    aos_status_t *s = NULL;
    aos_string_t bucket;
    aos_string_t object;
    aos_table_t *headers = NULL;
    oss_request_options_t *options = NULL;
    aos_table_t *resp_headers = NULL;
    aos_list_t resp_body;
    aos_list_t buffer;
    aos_buf_t *content;
    char *buf = NULL;
    int64_t len = 0;
    int64_t size = 0;
    int64_t pos = 0;
    char b64_buf[1024];
    int b64_len;
    /* Use the JSON format. */
    /* Optional. Configure the value of the host field carried in the callback request head
er. */
    char *callback =  "{"
        "\"callbackUrl\":\"http://oss-demo.aliyuncs.com:23450\","
         "\"callbackHost\":\"yourCallbackHost\","
        "\"callbackBody\":\"bucket=${bucket}&object=${object}&size=${size}&mimeType=${mimeT
ype}\","
        "\"callbackBodyType\":\"application/x-www-form-urlencoded\""
        "}";
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Initialize the parameters. */
    aos_pool_create(&p, NULL);
    options = oss_request_options_create(p);
    init_options(options);
    aos_str_set(&bucket, bucket_name);
```

```
    aos_str_set(&object, object_name);
    aos_list_init(&resp_body);
    aos_list_init(&buffer);
    content = aos_buf_pack(options->pool, object_content, strlen(object_content));
    aos_list_add_tail(&content->node, &buffer);
    /* Add callback to the header. */
    b64_len = aos_base64_encode((unsigned char*)callback, strlen(callback), b64_buf);
    b64_buf[b64_len] = '\0';
    headers = aos_table_make(p, 1);
    apr_table_set(headers, OSS_CALLBACK, b64_buf);
    /* Configure upload callback. */
    s = oss_do_put_object_from_buffer(options, &bucket, &object, &buffer,
        headers, NULL, NULL, &resp_headers, &resp_body);
    if (aos_status_is_ok(s)) {
        printf("put object from buffer succeeded\n");
    } else {
        printf("put object from buffer failed\n");
    }
    /* Obtain the buffer length. */
    len = aos_buf_list_len(&resp_body);
    buf = (char *)aos_pcalloc(p, (apr_size_t)(len + 1));
    buf[len] = '\0';
    /* Copy the content from the buffer to the memory. */
    aos_list_for_each_entry(aos_buf_t, content, &resp_body, node) {
        size = aos_buf_size(content);
        memcpy(buf + pos, content->pos, (size_t)size);
        pos += size;
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(p);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.7. Download objects

6.1.2.4.7.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for C provides a variety of methods to upload objects.

For the complete object download code, visit GitHub.

You can use one of the following methods to download a single object:

- Download to local files
- Download to local memory
- Range download
- Resumable download

You can view the download progress by using the progress bar. For more information, see Use progress bars.

6.1.2.4.7.2. Download to local files

This topic describes how to download an object to a local file.

For the complete code of object download, visit GitHub.

The following code provides an example on how to download a specified object to a local file:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
```

```
    aos_string_t file;
    aos_table_t *params;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    params = aos_table_make(pool, 0);
    /* Download the object to your local file. If the name of the object is the same as tha
t of the local file, the object replaces the local file. If the name of the object is diffe
rent from that of the local file, the object is downloaded. */
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers, par
ams, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("Get object from file succeeded\n");
    } else {
        printf("Get object from file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Note Compared with OSS SDK for C V1.0.0, this version adds the params parameter to the oss_get_object_to_file operation, and the values of the headers and params parameters can be NULL.

6.1.2.4.7.3. Download to local memory

This topic describes how to download an object to local memory.

For the complete code that is used to download objects, visit GitHub.

The following code provides an example on how to download a specified object to local memory:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
```

```
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_list_t buffer;
    aos_buf_t *content = NULL;
    aos_table_t *params = NULL;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    char *buf = NULL;
    int64_t len = 0;
    int64_t size = 0;
    int64_t pos = 0;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_list_init(&buffer);
    /* Download the object to local memory. */
    resp_status = oss_get_object_to_buffer(oss_client_options, &bucket, &object,
                                headers, params, &buffer, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to buffer succeeded\n");
        /* Copy the downloaded content to the buffer. */
        len = aos_buf_list_len(&buffer);
        buf = aos_pcalloc(pool, len + 1);
        buf[len] = '\0';
        aos_list_for_each_entry(aos_buf_t, content, &buffer, node) {
        size = aos_buf_size(content);
            memcpy(buf + pos, content->pos, size);
```

```
            pos += size;
        }
    }
    else {
        printf("get object to buffer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.7.4. Range download

If you need only part of the data in an object, you can use range download to download data within the specified range.

The following code provides an example on how to perform range download:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
```

```
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_list_t buffer;
    aos_buf_t *content = NULL;
    aos_table_t *params = NULL;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    char *buf = NULL;
    int64_t len = 0;
    int64_t size = 0;
    int64_t pos = 0;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_list_init(&buffer);
    headers = aos_table_make(pool, 1);
    /* Set the range to byte 20 to byte 100. */
    apr_table_set(headers, "Range", "bytes=20-100");
    /* Download the object to local memory. */
    resp_status = oss_get_object_to_buffer(oss_client_options, &bucket, &object, headers, p
arams, &buffer, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to buffer succeeded\n");
        /* Obtain the buffer length. */
        aos_list_for_each_entry(aos_buf_t, content, &buffer, node) {
            len += aos_buf_size(content);
        }
        buf = aos_pcalloc(pool, (apr_size_t)(len + 1));
        buf[len] = '\0';
        /* Copy the content in the buffer to the memory. */
        aos_list_for_each_entry(aos_buf_t, content, &buffer, node) {
            size = aos_buf_size(content);
            memcpy(buf + pos, content->pos, (size_t)size);
            pos += size;
        }
    }
    else {
        printf("get object to buffer failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
```

```
}
```

6.1.2.4.7.5. Resumable download

You may fail to download a large object if the network is unstable or other exceptions occur. In some cases, you may still fail to download the object even after multiple attempts. To solve this problem, OSS provides the resumable download feature.

To enable resumable download, you need to split the object you want to download into multiple parts and download them separately. After you have downloaded all parts, these parts will be combined into a complete object.

You can use the `oss_resumable_clt_params_t` method to implement resumable download. The following table describes the parameters included in `oss_resumable_clt_params_t`.

Parameter	Description
thread_num	The number of concurrent threads. Default value: 1.
enable_checkpoint	Specifies whether to enable resumable upload. By default, resumable upload is disabled.
partSize	The size of each part. Valid values: 1 byte to 5 GB.
checkpoint_path	The path of the checkpoint file. Default value: {upload_file_path}.cp.

The `checkpoint` file stores information about the download progress.If you fail to download a part, the download continues based on the progress recorded in the `checkpoint` file. The `checkpoint` file is deleted after resumable download is complete.

Run the following code for resumable download:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
```

```
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_resumable_clt_params_t *clt_params;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    /* Use resumable download to download the object. */
    clt_params = oss_create_resumable_clt_params_content(pool, 1024 * 100, 3, AOS_TRUE, NUL
L);
    resp_status = oss_resumable_download_file(oss_client_options, &bucket, &object, &file,
headers, NULL, clt_params, NULL, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("download succeeded\n");
    } else {
        printf("download failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.7.6. Use progress bars

Progress bars are used to indicate the progress of an upload or download.

For the complete code of download progress bars, visit GitHub.

The following code provides an example on how to view the progress information:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
const char *download_filename = "<yourDownloadFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
void percentage(int64_t consumed_bytes, int64_t total_bytes)
{
    assert(total_bytes >= consumed_bytes);
    printf("%%%" APR_INT64_T_FMT "\n", consumed_bytes * 100 / total_bytes);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos string t file;
```

```
    aos_table_t *resp_headers = NULL;
    aos_list_t resp_body;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    /* View the upload progress while you upload an object. */
    resp_status = oss_do_put_object_from_file(oss_client_options, &bucket, &object, &file,
NULL, NULL, percentage, &resp_headers, &resp_body);
    if (aos_status_is_ok(resp_status)) {
        printf("put object from file succeeded\n");
    } else {
        printf("put object from file failed\n");
    }
    /* View the download progress while you download an object. */
    aos_pool_create(&pool, NULL);
    oss_client_options = oss_request_options_create(pool);
    init_options(oss_client_options);
    aos_str_set(&file, download_filename);
    resp_status = oss_do_get_object_to_file(oss_client_options, &bucket, &object, NULL, NUL
L, &file, percentage, NULL);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

oss_get_object_from_file and oss_get_object_from_buffer does not support the progress bar feature.

6.1.2.4.8. Manage objects

6.1.2.4.8.1. Overview

You can manage objects in a bucket by using a variety of operations including SetObjectAcl, GetObjectAcl, ListObjects, DeleteObject, and CopyObject.

By using the preceding operations, you can perform the following operations:

- Manage object ACLs
- Manage object metadata
- List objects
- Delete objects
- Copy objects

6.1.2.4.8.2. Manage object ACLs

This topic describes how to manage the access control list (ACL) of an object.

The following table describes the ACLs that can be configured for an object.

ACL	Description	Value
Inherited from the bucket	The ACL of an object is the same as that of the bucket in which the object is stored.	OSS_ACL_DEFAULT
Private	Only the owner or authorized users of the bucket can read and write the object.	OSS_ACL_PRIVATE
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	OSS_ACL_PUBLIC_READ
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	OSS_ACL_PUBLIC_READ_WRITE

The ACL of objects take precedence over that of buckets. For example, if the ACL of a bucket is private, while the object ACL is public read-write, all users can read and write the object. If an object is not configured with an ACL, its ACL is the same as that of its bucket by default.

You can run the following code to configure an ACL for an object:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
```

```
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    oss_acl_e oss_acl = OSS_ACL_PUBLIC_READ;
    /* Configure the object ACL. */
    resp_status = oss_put_object_acl(oss_client_options, &bucket, &object, oss_acl, &resp_h
eaders);
    if (aos_status_is_ok(resp_status)) {
        printf("put object acl success! \n");
    } else {
        printf("put object acl failed! \n");
    }
    /* Query the ACL of the object. */
    aos_string_t oss_acl_string;
    resp_status = oss_get_object_acl(oss_client_options, &bucket, &object, &oss_acl_string,
&resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object acl success! \n");
        printf("acl: %s \n", oss_acl_string.data);
    } else {
        printf("get object acl failed! \n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.8.3. Manage object metadata

After you upload an object to OSS or before you read an object from OSS, you can use the `oss_get_object_meta` operation to query object metadata such as the content length and object type.

The following code provides an example on how to configure and query object metadata:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_table_t *headers;
    aos_list_t buffer;
    aos_table_t *resp_headers = NULL;
```

```
    aos_status_t *resp_status = NULL;
    aos_buf_t *content = NULL;
    char *content_length_str = NULL;
    char *object_type = NULL;
    char *object_author = NULL;
    int64_t content_length = 0;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    headers = aos_table_make(pool, 2);
    /* Configure user metadata. */
    apr_table_set(headers, "Expires", "Fri, 28 Feb 2032 05:38:42 GMT");
    apr_table_set(headers, "x-oss-meta-author", "oss");
    aos_list_init(&buffer);
    content = aos_buf_pack(oss_client_options->pool, object_content, strlen(object_content)
);
    aos_list_add_tail(&content->node, &buffer);
    /* Configure the object ACL. Upload object from the buffer. */
    resp_status = oss_put_object_from_buffer(oss_client_options, &bucket, &object,
                &buffer, headers, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("put object from buffer with md5 succeeded\n");
    } else {
        printf("put object from buffer with md5 failed\n");
    }
    /* Query the ACL of the object. */
    resp_status = oss_get_object_meta(oss_client_options, &bucket, &object, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        content_length_str = (char*)apr_table_get(resp_headers, OSS_CONTENT_LENGTH);
        if (content_length_str ! = NULL) {
            content_length = atol(content_length_str);
        }
        object_author = (char*)apr_table_get(resp_headers, OSS_AUTHORIZATION);
        object_type = (char*)apr_table_get(resp_headers, OSS_OBJECT_TYPE);
        printf("get object meta succeeded, object author:%s, object type:%s, content_length
:%ld\n", object_author, object_type, content_length);
    } else {
        printf("req:%s, get object meta failed\n", resp_status->req_id);
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Note For more information about HTTP headers, see RFC 2616.

6.1.2.4.8.4. List objects

This topic describes how to list the objects stored in a bucket.

For the complete code used to list objects, visit GitHub.

Objects are listed in alphabetical order. You can use `oss_list_object` to list objects in a bucket. The following table describes common parameters.

Parameter	Description
delimiter	Groups objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes.
prefix	Specifies the prefix that returned object names must contain.
max_ret	Specifies the maximum number of objects that can be listed at a time. The default value is 100. The maximum value is 1000.
marker	Specifies the name of the object after which the listing begins.

List all objects

The following code provides an example on how to list all objects in a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the apr library. */
    aos_pool_t *pool;
```

```
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    char *prefix = "";
    char *nextMarker = "";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list, n
ode) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->key.
data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_marke
r.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool. The memory allocated to various resources used for the requ
est is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
```

```
    return 0;
}
```

Note If a bucket contains more than 1,000 objects, only the first 1,000 objects are returned, and the value of the truncated parameter in the response is true. Additionally, the next_marker parameter is returned as the start point for the next read. To list more than 1,000 objects at a time, you can modify the max_ret parameter. You can also use the marker parameter to perform multiple read operations.

List a specified number of objects

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is incl
uded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* The memory consumed by options is allocated by the memory pool and is released with
the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
```

```
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    char *prefix = "";
    char *nextMarker = "";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    /* Set the maximum number of returned objects to 200. */
    params->max_ret = 200;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
    if (! aos_status_is_ok(resp_status))
    {
        printf("list object failed\n");
    }
    aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list, node)
{
        ++size;
        line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->key.data
,
            content->size.len, content->size.data,
            content->last_modified.len, content->last_modified.data);
        printf("%s", line);
    }
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory allo
cated to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocated
global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

List objects whose names contain the specified prefix

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
```

```
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is incl
uded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* The memory consumed by options is allocated by the memory pool and is released with
the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    /* List the objects whose names contain the specified prefix. */
    char *prefix = "<yourObjectPefix>";
    char *nextMarker = "";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list, n
ode) {
```

```
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->key.
data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_marke
r.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory allo
cated to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocated
global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

List objects that come after a specified marker

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as network
s and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is incl
uded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
```

```
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* The memory consumed by options is allocated by the memory pool and is released with
the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    char *prefix = "";
    /* List objects that come after the specified marker. */
    char *nextMarker = "<yourObjectMarker>";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list, n
ode) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->key.
data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_marke
r.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory allo
cated to various resources used for the request is released. */
```

```
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocated
global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Folder simulation

OSS does not use folders. All elements are stored as objects. To simulate a folder on the OSS console, you actually create a 0 MB object whose name ends with a forward slash (/). This object can be uploaded and downloaded. By default, the OSS console displays an object whose name ends with a forward slash (/) as a folder.

The delimiter and prefix parameters can be used to simulate folder functions.

- Prefix: specifies the prefix as the name of a folder. The folder is used to list all files (in the folder) and subfolders (directories in the folder) that start with this prefix. These files and subfolders are included in the Objects list.
- Delimiter: If the delimiter is specified as a forward slash (/), only the files and subfolders (directories) are displayed. Subfolders (directories) are included in the CommonPrefixes list, while the files and folders in subfolders are not displayed.

For the complete code used to create a folder, visit GitHub.

Assume that the following objects are stored in a bucket: oss.jpg, fun/test.jpg, fun/movie/001.avi, and fun/movie/007.avi. Forward slashes (/) are used as delimiters for folders. The subsequent examples show how to simulate folder functions.

- List all objects in a bucket

  Run the following code to list all objects in a bucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is n
ot used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as netwo
rks and memory. */
```

```
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The
code used to create a memory pool is included in the apr library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that
the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration inform
ation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    char *nextMarker = "";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list,
node) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->ke
y.data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_mar
ker.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool. The memory allocated to various resources used for the re
quest is released. */
```

```
quest is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

The returned results are as follows:

```
Objects:
fun/movie/001.avi
fun/movie/007.avi
fun/test.jpg
oss.jpg
CommonPrefixes:
```

- List all objects in a specified folder

  Run the following code to list all objects in a specified folder:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is n
ot used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as netwo
rks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is in
cluded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that
the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration inform
ation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
```

```
    /* The memory consumed by options is allocated by the memory pool and is released wit
h the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    int size = 0;
    char *line = NULL;
    /* List the objects whose names contain the specified prefix. */
    char *prefix = "fun/";
    char *nextMarker = "";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list,
node) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->ke
y.data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_mar
ker.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory al
located to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocat
ed global resources.
    aos_http_io_deinitialize();
    return 0;
}
```

The returned results are as follows:

```
Objects:
fun/movie/001.avi
fun/movie/007.avi
fun/test.jpg
CommonPrefixes:
```

- List the objects and subfolders in a folder

  Use the following code to list objects and subfolders in a folder:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is n
ot used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as netwo
rks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is in
cluded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that
the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration inform
ation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* The memory consumed by options is allocated by the memory pool and is released wit
h the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
```

```
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    oss_list_object_common_prefix_t *commonPrefix = NULL;
    int size = 0;
    char *line = NULL;
    /* List the objects whose names contain the specified prefix. */
    char *prefix = "fun/";
    char *nextMarker = "";
    /* Set the delimiter to forward slashes (/). */
    char *delimiter = "/";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
    aos_str_set(&params->marker, nextMarker);
    aos_str_set(&params->delimiter, delimiter);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list,
node) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->ke
y.data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        aos_list_for_each_entry(oss_list_object_common_prefix_t, commonPrefix, &params->c
ommon_prefix_list, node) {
            line = apr_psprintf(pool, "%.*s", commonPrefix->prefix.len, commonPrefix->pre
fix.data);
            printf("%s", line);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_mar
ker.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory al
located to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocat
ed global resources. */
    aos_http_io_deinitialize();
```

```
    return 0;
}
```

The returned results are as follows:

```
Objects:
fun/test.jpg
CommonPrefixes:
fun/movie/
```

- List the sizes of objects in a specified folder

  The following code provides an example on how to query the sizes of objects in a specified folder:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is n
ot used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int64_t calculateFolderLength (aos_string_t bucketName, char* folder)
{
    int64_t size = 0;
    oss_list_object_params_t *params = NULL;
    char *nextMarker = "";
    aos_status_t *resp_status = NULL;
    aos_pool_t *p = NULL;
    oss_request_options_t *options = NULL;
    oss_list_object_content_t* content = NULL;
    aos_pool_create(&p, NULL);
    options = oss_request_options_create(p);
    params = oss_create_list_object_params(p);
    params->max_ret = 10;
    aos_str_set(&params->prefix, folder);
    aos_str_set(&params->marker, nextMarker);
    /* List all objects. */
    do {
        resp_status = oss_list_object(options, &bucketName, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
```

```
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list,
node) {
            size += content->size.len;
        }
        nextMarker = apr_psprintf(p, "%.*s", params->next_marker.len, params->next_marker
.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    /* Release the memory pool after the request is complete. In this case, the memory al
located to various resources used for the request is released. */
    aos_pool_destroy(p);
    return size;
}
int main(int argc, char *argv[])
{
    /* Call aos_http_io_initialize in main() to initialize global resources such as netwo
rks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. The code used to create a memory pool is in
cluded in the APR library. aos_pool_t is equivalent to apr_pool_t. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that
the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration inform
ation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* The memory consumed by options is allocated by the memory pool and is released wit
h the pool. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_status_t *resp_status = NULL;
    oss_list_object_params_t *params = NULL;
    oss_list_object_content_t *content = NULL;
    oss_list_object_common_prefix_t *commonPrefix = NULL;
    int size = 0;
    char *line = NULL;
    /* List the objects whose names contain the specified prefix. */
    char *prefix = "fun/";
    char *nextMarker = "";
    /* Set the delimiter to forward slashes (/). */
    char *delimiter = "/";
    aos_str_set(&bucket, bucket_name);
    params = oss_create_list_object_params(pool);
    params->max_ret = 100;
    aos_str_set(&params->prefix, prefix);
```

```
    aos_str_set(&params->marker, nextMarker);
    aos_str_set(&params->delimiter, delimiter);
    printf("Object\tSize\tLastModified\n");
    /* List all objects. */
    do {
        resp_status = oss_list_object(oss_client_options, &bucket, params, NULL);
        if (! aos_status_is_ok(resp_status))
        {
            printf("list object failed\n");
            break;
        }
        aos_list_for_each_entry(oss_list_object_content_t, content, &params->object_list,
node) {
            ++size;
            line = apr_psprintf(pool, "%.*s\t%.*s\t%.*s\n", content->key.len, content->ke
y.data,
                content->size.len, content->size.data,
                content->last_modified.len, content->last_modified.data);
            printf("%s", line);
        }
        aos_list_for_each_entry(oss_list_object_common_prefix_t, commonPrefix, &params->c
ommon_prefix_list, node) {
            line = apr_psprintf(pool, "%.*s", commonPrefix->prefix.len, commonPrefix->pre
fix.data);
            int64_t size = calculateFolderLength(bucket, commonPrefix->prefix.data);
            printf("Total %d\n", size);
        }
        nextMarker = apr_psprintf(pool, "%.*s", params->next_marker.len, params->next_mar
ker.data);
        aos_str_set(&params->marker, nextMarker);
        aos_list_init(&params->object_list);
        aos_list_init(&params->common_prefix_list);
    } while (params->truncated == AOS_TRUE);
    printf("Total %d\n", size);
    /* Release the memory pool after the request is complete. In this case, the memory al
located to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Before you close the program, call aos_http_io_deinitialize to release the allocat
ed global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.8.5. Delete objects

This topic describes how to delete objects.

> **Warning** Deleted objects cannot be recovered. Exercise caution when you delete objects.

For the complete code used to delete objects, visit GitHub.

Delete a single object

The following code provides an example on how to delete an object named *exampleobject.txt* from a bucket named examplebucket:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign char* data to the aos_string_t bucket. */
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Delete the object. */
    resp_status = oss_delete_object(oss_client_options, &bucket, &object, &resp_headers);
    /* Determine whether the object is deleted. */
```

```
    if (aos_status_is_ok(resp_status)) {
        printf("delete object succeed\n");
    } else {
        printf("delete object failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete multiple objects

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name1 = "<yourObjectName1>";
const char *object_name2 = "<yourObjectName2>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
```

```
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object1;
    aos_string_t object2;
    int is_quiet = 1;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object1, object_name1);
    aos_str_set(&object2, object_name2);
    /* Create a list of objects you want to delete. */
    aos_list_t object_list;
    aos_list_t deleted_object_list;
    oss_object_key_t *content1;
    oss_object_key_t *content2;
    aos_list_init(&object_list);
    aos_list_init(&deleted_object_list);
    content1 = oss_create_oss_object_key(pool);
    aos_str_set(&content1->key, object_name1);
    aos_list_add_tail(&content1->node, &object_list);
    content2 = oss_create_oss_object_key(pool);
    aos_str_set(&content2->key, object_name2);
    aos_list_add_tail(&content2->node, &object_list);
    /* Delete objects in the list. `is_quiet` specifies whether to return the deletion resu
lt. */
    resp_status = oss_delete_objects(oss_client_options, &bucket, &object_list, is_quiet, &
resp_headers, &deleted_object_list);
    if (aos_status_is_ok(resp_status)) {
        printf("delete objects succeeded\n");
    } else {
        printf("delete objects failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Delete multiple objects whose names contain a specified prefix

You can delete multiple objects whose names contain a specified prefix to delete a folder. For example, if you delete objects whose names contain dir/, the dir folder is deleted. The following code provides an example on how to delete multiple objects whose names contain a specified prefix:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
```

```
const char *bucket_name = "<yourBucketName>";
const char *object_prefix = "<yourObjectNamePrefix>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration informa
tion such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t prefix;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&prefix, object_prefix);
    /* Delete the objects whose names contain the specified prefix. */
    resp_status = oss_delete_objects_by_prefix(oss_client_options, &bucket, &prefix);
    if (aos_status_is_ok(resp_status)) {
        printf("delete objects by prefix succeeded\n");
    } else {
        printf("delete objects by prefix failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the request.
*/
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

```
}
```

Warning If you set the prefix to an empty string or NULL, all objects in the bucket are deleted. Exercise caution when you use this operation.

6.1.2.4.8.6. Copy objects

This topic describes how to copy an object.

Limits on object copying:

- You must have read permissions on the source object and write permissions on the destination bucket.
- You cannot copy an object across regions.

Copy a small object

The following code provides an example on how to copy an object smaller than or equal to 1 GB in size:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *source_bucket_name = "<yourSourceBucketName>";
const char *source_object_name = "<yourSourceObjectName>";
const char *dest_bucket_name = "<yourDestBucketName>";
const char *dest_object_name = "<yourDestObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as the timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
```

```
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t source_bucket;
    aos_string_t source_object;
    aos_string_t dest_bucket;
    aos_string_t dest_object;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&source_bucket, source_bucket_name);
    aos_str_set(&source_object, source_object_name);
    aos_str_set(&dest_bucket, dest_bucket_name);
    aos_str_set(&dest_object, dest_object_name);
    headers = aos_table_make(pool, 0);
    /* Copy the object. */
    resp_status = oss_copy_object(oss_client_options, &source_bucket, &source_object, &dest
_bucket, &dest_object, headers, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("copy object succeeded\n");
    } else {
        printf("copy object failed\n");
    }
    /* Release the memory pool. The memory allocated to various resources used for the requ
est is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Copy a large object

We recommend that you use the oss_upload_part_copy operation to copy an object larger than 1 GB in size. The following code provides an example on how to perform multipart copy:

```
#include "oss_api.h"
#include "aos_http_io.h"
#include <sys/stat.h>
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *source_bucket_name = "<yourSourceBucketName>";
const char *source_object_name = "<yourSourceObjectName>";
const char *dest_bucket_name = "<yourDestBucketName>";
```

```
const char *dest_object_name = "<yourDestObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as the timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int64_t get_file_size(const char *file_path)
{
    int64_t filesize = -1;
    struct stat statbuff;
    if(stat(file_path, &statbuff) < 0){
        return filesize;
    } else {
        filesize = statbuff.st_size;
    }
    return filesize;
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t dest_bucket;
    aos_string_t dest_object;
    aos_string_t upload_id;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    oss_list_upload_part_params_t *list_upload_part_params;
```

```
    oss_upload_part_copy_params_t *upload_part_copy_params1;
    oss_upload_part_copy_params_t *upload_part_copy_params2;
    oss_list_part_content_t *part_content;
    aos_list_t complete_part_list;
    oss_complete_part_content_t *complete_content;
    aos_table_t *list_part_resp_headers = NULL;
    aos_table_t *complete_resp_headers = NULL;
    int part1 = 1;
    int part2 = 2;
    int64_t range_start1 = 0;
    int64_t range_end1 = 6000000;//not less than 5MB
    int64_t range_start2 = 6000001;
    int64_t range_end2;
    int max_ret = 1000;
    headers = aos_table_make(pool, 0);
    aos_str_set(&dest_bucket, dest_bucket_name);
    aos_str_set(&dest_object, dest_object_name);
    resp_status = oss_init_multipart_upload(oss_client_options, &dest_bucket, &dest_object,
&upload_id, headers, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("init multipart upload succeeded, upload_id is %s\n", upload_id.data);
    } else {
        printf("init multipart upload failed\n");
    }
    /* Copy the first part. */
    upload_part_copy_params1 = oss_create_upload_part_copy_params(pool);
    aos_str_set(&upload_part_copy_params1->source_bucket, source_bucket_name);
    aos_str_set(&upload_part_copy_params1->source_object, source_object_name);
    aos_str_set(&upload_part_copy_params1->dest_bucket, dest_bucket_name);
    aos_str_set(&upload_part_copy_params1->dest_object, dest_object_name);
    aos_str_set(&upload_part_copy_params1->upload_id, upload_id.data);
    upload_part_copy_params1->part_num = part1;
    upload_part_copy_params1->range_start = range_start1;
    upload_part_copy_params1->range_end = range_end1;
    headers = aos_table_make(pool, 0);
    resp_status = oss_upload_part_copy(oss_client_options, upload_part_copy_params1, header
s, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("upload part 1 copy succeeded\n");
    } else {
        printf("upload part 1 copy failed\n");
    }
    /* Copy the second part. */
    range_end2 = get_file_size(local_filename) - 1;
    upload_part_copy_params2 = oss_create_upload_part_copy_params(pool);
    aos_str_set(&upload_part_copy_params2->source_bucket, source_bucket_name);
    aos_str_set(&upload_part_copy_params2->source_object, source_object_name);
    aos_str_set(&upload_part_copy_params2->dest_bucket, dest_bucket_name);
    aos_str_set(&upload_part_copy_params2->dest_object, dest_object_name);
    aos_str_set(&upload_part_copy_params2->upload_id, upload_id.data);
    upload_part_copy_params2->part_num = part2;
    upload_part_copy_params2->range_start = range_start2;
    upload_part_copy_params2->range_end = range_end2;
    headers = aos_table_make(pool, 0);
    resp_status = oss_upload_part_copy(oss_client_options, upload_part_copy_params2, header
```

```
    resp_status = oss_upload_part_copy(oss_client_options, upload_part_copy_params2, headers, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("upload part 2 copy succeeded\n");
    } else {
        printf("upload part 2 copy failed\n");
    }
    /* List the copied parts. */
    headers = aos_table_make(pool, 0);
    list_upload_part_params = oss_create_list_upload_part_params(pool);
    list_upload_part_params->max_ret = max_ret;
    aos_list_init(&complete_part_list);
    resp_status = oss_list_upload_part(oss_client_options, &dest_bucket, &dest_object, &upload_id, list_upload_part_params, &list_part_resp_headers);
    aos_list_for_each_entry(oss_list_part_content_t, part_content, &list_upload_part_params->part_list, node) {
       complete_content = oss_create_complete_part_content(pool);
       aos_str_set(&complete_content->part_number, part_content->part_number.data);
       aos_str_set(&complete_content->etag, part_content->etag.data);
       aos_list_add_tail(&complete_content->node, &complete_part_list);
    }
    /* Complete the multipart copy task. */
    resp_status = oss_complete_multipart_upload(oss_client_options, &dest_bucket, &dest_object, &upload_id, &complete_part_list, headers, &complete_resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("complete multipart upload succeeded\n");
    } else {
        printf("complete multipart upload failed\n");
    }
    /* Release the memory pool. The memory allocated to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.9. Authorized access

This topic describes how to authorize access to OSS by using Security Token Service (STS) or a signed URL.

Use STS to authorize temporary access

Alibaba Cloud STS is a web service that provides a temporary access token to a cloud computing user. You can use STS to grant a third-party application or your RAM user an access credential with a customized validity period and permissions.

STS provides the following benefits:

- You need only to generate an access token and send the access token to a third-party application, instead of exposing your AccessKey pair to the third-party application. You can define the access permissions and validity period of this token.

- The token automatically expires after the validity period. Therefore, you do not need to manually revoke the access permissions of a token.

The following code provides an example on how to use STS to authorize temporary access to upload an object:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *sts_token = "<yourStsToken>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *object_content = "More than just cloud.";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    aos_str_set(&options->config->sts_token, sts_token);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not
used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as the timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such
as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The c
ode to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration informat
ion such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_list_t buffer;
    aos_buf_t *content = NULL;
    aos table t *headers = NULL;
```

```
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    /* Assign the char * data to the bucket. */
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_list_init(&buffer);
    content = aos_buf_pack(oss_client_options->pool, object_content, strlen(object_content)
);
    aos_list_add_tail(&content->node, &buffer);
    /* Start to upload the object. */
    resp_status = oss_put_object_from_buffer(oss_client_options, &bucket, &object, &buffer,
headers, &resp_headers);
    /* Determine whether the upload is successful. */
    if (aos_status_is_ok(resp_status)) {
        printf("put object from buffer succeeded\n");
    } else {
        printf("put object from buffer failed\n");
    }
    /* Release the memory pool. The memory allocated to various resources used for the requ
est is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

Use a signed URL to authorize temporary access

You can generate a signed URL and provide the URL to a visitor for temporary access. When you generate a signed URL, you can specify the validity period of the URL to limit the period of access from visitors. By default, the validity period of a signed URL is 3,600 seconds. The maximum validity period of a signed URL is 32,400 seconds.

- Use a signed URL to upload an object

  The following code provides an example on how to upload an object by using a signed URL:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is n
```

```
ot used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as the timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources su
ch as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The
code to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that
the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration inform
ation such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_http_request_t *req;
    apr_time_t now;
    char *url_str;
    aos_string_t url;
    int64_t expire_time;
    int one_hour = 3600;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    expire_time = now / 1000000 + one_hour;
    headers = aos_table_make(pool, 0);
    req = aos_http_request_create(pool);
    req->method = HTTP_PUT;
    now = apr_time_now(); /* Unit: microseconds */
    expire_time = now / 1000000 + one_hour;
    /* Generate a signed URL. */
    url_str = oss_gen_signed_url(oss_client_options, &bucket, &object, expire_time, req);
    aos_str_set(&url, url_str);
    printf ("The signed URL: %s\n", url_str);
    /* Use the signed URL to upload the object. */
    resp_status = oss_put_object_from_file_by_url(oss_client_options, &url, &file, header
s, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
```

```
    if (aos_status_is_ok(resp_status)) {
        printf("put objects by signed url succeeded\n");
    } else {
        printf("put objects by signed url failed\n");
    }
    /* Release the memory pool. The memory allocated to various resources used for the request is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

- Use a signed URL to download an object

  The following code provides an example on how to download a specified object by using a signed URL:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
const char *local_filename = "<yourLocalFilename>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize the aos_string_t data type. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME to access OSS. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as the timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The code to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This parameter indicates that the pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter includes global configuration information such as endpoint, access_key_id, acces_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate a memory chunk in the memory pool to options. */
```

```
    /* Allocate a memory chunk in the memory pool to options. */
    oss_client_options = oss_request_options_create(pool);
    /* Call oss_client_options to initialize the client options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *params = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_http_request_t *req;
    apr_time_t now;
    char *url_str;
    aos_string_t url;
    int64_t expire_time;
    int one_hour = 3600;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    aos_str_set(&file, local_filename);
    expire_time = now / 1000000 + one_hour;
    headers = aos_table_make(pool, 0);
    params = aos_table_make(pool, 0);
    req = aos_http_request_create(pool);
    req->method = HTTP_GET;
    now = apr_time_now(); /* Unit: microseconds */
    expire_time = now / 1000000 + one_hour;
    /* Generate a signed URL. */
    url_str = oss_gen_signed_url(oss_client_options, &bucket, &object, expire_time, req);
    aos_str_set(&url, url_str);
    /* Use the signed URL to download the object. */
    resp_status = oss_get_object_to_file_by_url(oss_client_options, &url, headers, params
, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object succeeded\n");
    } else {
        printf("get object failed\n");
    }
    /* Release the memory pool. The memory allocated to various resources used for the re
quest is released. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.10. IMG

OSS Image Processing (IMG) is a secure, cost-effective, and highly reliable image processing service that can process large amounts of data. After you upload source images to OSS, you can call RESTful API operations to process the images anytime, anywhere, and on any Internet device.

For the complete IMG code, visit GitHub.

Basic features

OSS IMG provides the following features:

- Query image information.
- Convert image formats.
- Resize, crop, and rotate images.
- Apply image effect.
- Add image, text, and text-and-image watermarks to images.
- Customize image processing styles. Log on to the OSS console. Click a bucket name to go to the bucket details page. Click the **Image Processing (IMG)** tab and click **Create Rule** to customize an image processing style.
- Use cascade processing to call multiple IMG features.

Usage

You can use standard `HTTP GET` requests to access IMG. All processing parameters are encoded in the query string of a URL.

- Anonymous access

  You can anonymously access a processed image by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction>,<yourParamValue>
  ```

Parameter	Description
bucket	The name of the bucket.
endpoint	The domain name used to access the region.
object	The name of the image object.
image	The identifier reserved by IMG.
action	The operations performed on images, such as scaling, cropping, and rotating.
param	The parameters corresponding to the operations performed on the images.

  - Basic operations

    For example, you can scale an image to a width of 100 and adjust the height based on the ratio:

    ```
    http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
    ```

- Customize an image style

  You can anonymously access IMG by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=style/<yourStyleName>
  ```

  - style: the identifier reserved by IMG for the custom style.
  - yourStyleName: the name of the custom style. The name is specified by the Rule Name parameter when you create the custom style in the console.

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=style/oss-pic-style-w-100
  ```

- Cascade processing

  You can use cascade processing to perform multiple operations in sequence on an image by using a URL in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction1>,<yourParamValue1>/<yourAction2>,<yourParamValue2>/...
  ```

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100/rotate,90
  ```

- Access by using HTTPS

  IMG supports access by using HTTPS. Example:

  ```
  https://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
  ```

- Authorized access

  If the ACL of an image object is private, you must have permissions on the image object before you can perform operations on the image object.

Bucket ACL	Object ACL
private	default
Any ACL	private

The following code provides an example on how to generate a signed URL to access IMG:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
```

```
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources su
ch as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. The
code to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This value indicates that the
pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration infor
mation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate the memory resources in the memory pool to the options. */
    oss_client_options = oss_request_options_create(pool);
    /* Initialize oss_client_options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_table_t *params = NULL;
    aos_http_request_t *req;
    char *url_str;
    apr_time_t now;
    int64_t expire_time;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Process the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/resize,m_fixed,w_100,h_100");
    req = aos_http_request_create(pool);
    req->method = HTTP_GET;
    req->query_params = params;
    /* Specify the validity period (expire_time) in seconds. */
    now = apr_time_now();
    expire_time = now / 1000000 + 10 * 60;
    /* Generate a signed URL. */
    url_str = oss_gen_signed_url(oss_client_options, &bucket, &object, expire_time, req);
    printf("url: %s\n", url_str);
    /* Release the memory pool, which releases memory resources allocated for the request
```

```
. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

- Access by using SDKs

  You can use OSS SDKs to access and process image objects of any ACLs.

  - Basic operations

    The following code provides an example on how to perform basic IMG operations including obtaining image information, converting image formats, resizing, cropping, rotating, watermarking, and applying effects:

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources
such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. T
he code used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This value indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration inf
ormation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate the memory resources in the memory pool to the options. */
    oss_client_options = oss_request_options_create(pool);
    /* Initialize oss_client_options. */
    init_options(oss_client_options);
```

```
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *params = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Scale the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/resize,m_fixed,w_100,h_100");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-resize.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Crop the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/crop,w_100,h_100,x_100,y_100,r_1");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-crop.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Rotate the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/rotate,90");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-rotate.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Sharpen the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/sharpen,100");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-sharpen.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
```

```
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Add watermarks to the image. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ
");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-watermark.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Convert the image format. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/format,png");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-format.png");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Obtain image information. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/info");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-info.txt");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the reque
st. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

- Custom image styles

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
```

```
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources
such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. T
he code used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This value indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration inf
ormation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate the memory resources in the memory pool to the options. */
    oss_client_options = oss_request_options_create(pool);
    /* Initialize oss_client_options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *params = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Customize the image style. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "style/<yourCustomStyleName>");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-custom-style.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
```

```
    } else {
        printf("get object to file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the reque
st. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

- Cascade processing

```
#include "oss_api.h"
#include "aos_http_io.h"
const char *endpoint = "<yourEndpoint>";
const char *access_key_id = "<yourAccessKeyId>";
const char *access_key_secret = "<yourAccessKeySecret>";
const char *bucket_name = "<yourBucketName>";
const char *object_name = "<yourObjectName>";
void init_options(oss_request_options_t *options)
{
    options->config = oss_config_create(options->pool);
    /* Use a char* string to initialize aos_string_t. */
    aos_str_set(&options->config->endpoint, endpoint);
    aos_str_set(&options->config->access_key_id, access_key_id);
    aos_str_set(&options->config->access_key_secret, access_key_secret);
    /* Specify whether to use CNAME. A value of 0 indicates that CNAME is not used. */
    options->config->is_cname = 0;
    /* Configure network parameters such as timeout periods. */
    options->ctl = aos_http_controller_create(options->pool, 0);
}
int main(int argc, char *argv[])
{
    /* Call the aos_http_io_initialize method in main() to initialize global resources
such as networks and memory. */
    if (aos_http_io_initialize(NULL, 0) ! = AOSE_OK) {
        exit(1);
    }
    /* Create a memory pool to manage memory. aos_pool_t is equivalent to apr_pool_t. T
he code used to create a memory pool is included in the APR library. */
    aos_pool_t *pool;
    /* Create a memory pool. The second parameter is NULL. This value indicates that th
e pool does not inherit any other memory pool. */
    aos_pool_create(&pool, NULL);
    /* Create and initialize options. This parameter specifies global configuration inf
ormation such as endpoint, access_key_id, access_key_secret, is_cname, and curl. */
    oss_request_options_t *oss_client_options;
    /* Allocate the memory resources in the memory pool to the options. */
    oss_client_options = oss_request_options_create(pool);
    /* Initialize oss_client_options. */
    init_options(oss_client_options);
    /* Initialize the parameters. */
    aos_string_t bucket;
    aos_string_t object;
```

```
    aos_string_t file;
    aos_table_t *headers = NULL;
    aos_table_t *params = NULL;
    aos_table_t *resp_headers = NULL;
    aos_status_t *resp_status = NULL;
    aos_str_set(&bucket, bucket_name);
    aos_str_set(&object, object_name);
    /* Perform cascade processing. */
    params = aos_table_make(pool, 1);
    apr_table_set(params, OSS_PROCESS, "image/resize,m_fixed,w_100,h_100/rotate,90");
    /* Download the processed image to a local file. */
    aos_str_set(&file, "example-cascade.jpg");
    resp_status = oss_get_object_to_file(oss_client_options, &bucket, &object, headers,
params, &file, &resp_headers);
    if (aos_status_is_ok(resp_status)) {
        printf("get object to file succeeded\n");
    } else {
        printf("get object to file failed\n");
    }
    /* Release the memory pool, which releases memory resources allocated for the reque
st. */
    aos_pool_destroy(pool);
    /* Release the allocated global resources. */
    aos_http_io_deinitialize();
    return 0;
}
```

6.1.2.4.11. Error handling

This topic describes how to handle errors when you use OSS SDK for C.

Exception handling

If an error occurs when you send a request by using OSS SDK for C, an corresponding error message is returned by aos_status_s. The following table describes the attributes of aos_status_s.

Error code	Description	Type
code	The HTTP status code of the error request.	Integer
error_code	The error code returned by OSS.	String
error_msg	The error message returned by OSS.	String
req_id	The UUID that identifies the request. You can provide req_id to OSS development engineers for help.	String

Timeout handling

If the code in the returned aos_status_t parameter is not 2xx and error_code indicates -992 or -995, the connection or request times out. You can send the request again.

You can use aos_should_retry(aos_status_t *) in the aos_status.h file to determine whether the error code returned requires a retry. If a value of 1 is returned, you can try again.

Common error codes

Error code	Error message	HTTP status code
AccessDenied	The error message returned because the access is denied.	403
BucketAlreadyExists	The error message returned because the bucket already exists.	409
BucketNotEmpty	The error message returned because the bucket is not empty.	409
EntityTooLarge	The error message returned because the entity exceeds the maximum allowed size.	400
EntityTooSmall	The error message returned because the entity is smaller than the minimum allowed size.	400
FileGroupTooLarge	The error message returned because the object group exceeds the maximum allowed size.	400
FilePartNotExist	The error message returned because the specified part does not exist.	400
FilePartStale	The error message returned because the part has expired.	400
InvalidArgument	The error message returned because the parameter format is invalid.	400
InvalidAccessKeyId	The error message returned because the specified Accesskey ID does not exist.	403
InvalidBucketName	The error message returned because the bucket name is invalid.	400
InvalidDigest	The error message returned because the digest is invalid.	400

Error code	Error message	HTTP status code
InvalidObjectName	The error message returned because the object name is invalid.	400
InvalidPart	The error message returned because the part is invalid.	400
InvalidPartOrder	The error message returned because the part order is invalid.	400
InvalidTargetBucketForLogging	The error message returned because the target bucket specified for logging is invalid.	400
InternalError	The error message returned because an internal OSS error occurs.	500
MalformedXML	The error message returned because the XML format is invalid.	400
MethodNotAllowed	The error message returned because the method is not supported.	405
MissingArgument	The error message returned because the required parameters are not set.	411
MissingContentLength	The error message returned because the content length is not specified.	411
NoSuchBucket	The error message returned because the specified bucket does not exist.	404
NoSuchKey	The error message returned because the specified object does not exist.	404
NoSuchUpload	The error message returned because the specified multipart upload ID does not exist.	404
NotImplemented	The error message returned because the method cannot be implemented.	501
PreconditionFailed	The error message returned because a precondition error occurs.	412

Error code	Error message	HTTP status code
RequestTimeTooSkewed	The error message returned because the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes.	403
RequestTimeout	The error message returned because the request times out.	400
SignatureDoesNotMatch	The error message returned because the signature is invalid.	403
TooManyBuckets	The error message returned because the number of the buckets managed by a user exceeds the limit.	400

6.1.2.5. Go-SDK

6.1.2.5.1. Preface

This topic describes the sample code of OSS SDK for Go in various use cases.

SDK source code and API documents

For the source code of OSS SDK for Go, visit GitHub. For more information, see OSS SDK for Go API documents.

Sample programs

OSS SDK for Go provides a variety of sample programs for your reference or use. The following table describes the sample programs provided.

Sample file	Description
new_bucket.go	Shows you how to initialize a client.
put_object.go	Shows you how to use simple upload and resumable upload.
append_object.go	Shows you how to use append upload.
get_object.go	Shows you how to use streaming download, range download, and resumable download.
delete_object.go	Shows you how to delete a single object and multiple objects.
copy_object.go	Shows you how to use object copy and resumable copy.

Sample file	Description
list_objects.go	Shows you how to list objects, including list by default or specified parameter.
object_meta.go	Shows you how to configure and query object metadata.
object_acl.go	Shows you how to configure and query object ACL.
cname_sample.go	Shows you how to use CNAME.
create_bucket.go	Shows you how to create a bucket.
list_buckets.go	Shows you how to list buckets, including list by default or specified parameter.
bucket_acl.go	Shows you how to configure and query bucket ACL.
bucket_referer.go	Shows you how to configure, query, and delete the Referer whitelist for a bucket.
bucket_logging.go	Shows you how to configure, query, and delete access logs for a bucket.
bucket_lifecycle.go	Shows you how to configure, query, and delete lifecycle rules for objects in a bucket.
bucket_cors.go	Shows you how to configure, query, and delete the cross-origin resource sharing (CORS) rules for a bucket.

6.1.2.5.2. Installation

This topic describes how to install OSS SDK for Go.

Prerequisites

- Environment

  Go 1.6 or later is required.

  For more information about how to download and install the environment for Go, visit Installing Go from source. After Go is installed, create a new system variable GOPATH, and set the value to your code directory. For more information about GOPATH, run the `go help gopath` command.

- Check the Go version

  Run the `go version` command to view the version of Go.

Download OSS SDK for Go

- Download from GitHub
- Download previous versions

Install OSS SDK for Go

Run the following command to install OSS SDK for Go:

```
go get github.com/aliyun/aliyun-oss-go-sdk/oss
```

Note When you run the go get command to install the SDK, no prompts are displayed. If the installation times out, run the preceding command again.

View the version of OSS SDK for Go

Run the following code to view the version of OSS SDK for Go:

```
package main
import (
  "fmt"
  "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
  fmt.Println("OSS Go SDK Version: ", oss.Version)
}
```

6.1.2.5.3. Initialization

OSSClient serves as the client of OSS SDK for Go to manage OSS resources such as buckets and objects.

To create an OSSClient instance, you must specify an endpoint. For more information about endpoints, see Obtain an endpoint.

To create an OSSClient instance, you must specify an AccessKey pair. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

The following table describes the parameters you can configure for this operation.

Parameter	Description	Default
UseCname	Specifies whether to use CNAME.	No
Timeout	The timeout period for request, including the connection timeout period and socket read/write timeout period. Unit: seconds.	The connection timeout period is 30 seconds. The read/write timeout period is 60 seconds.
SecurityToken	The temporary security token for users.	None
EnableMD5	Specifies whether to enable MD5 verification. We recommend that you enable CRC, which is more efficient than MD5 verification.	No
EnableCRC	Specifies whether to enable CRC.	Yes

Parameter	Description	Default
Proxy	The proxy server. Example: `http://8.8.8.8:3128`.	None
AuthProxy	The proxy server that requires an account and a password to log on.	None

Create an OSSClient instance based on an OSS endpoint

The following code provides an example on how to create an OSSClient instance based on an OSS endpoint:

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
```

Create an OSSClient instance based on a custom domain name

For the complete code of custom domain names, visit GitHub.

The following code provides an example on how to create an OSSClient instance based on a custom domain name:

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
// oss.UseCname(true) indicates that CNAME is enabled. If CNAME is enabled, a custom domain
name can be bound to a bucket.
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>", oss.
UseCname(true))
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
```

Notice When you use CNAME, you cannot list buckets because a custom domain name is bound to a specified bucket.

Create an OSSClient instance based on STS

The following code provides an example on how to create an OSSClient instance based on Security Token Service (STS):

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>", oss.
SecurityToken("<yourSecurityToken>"))
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
```

Configure the connection timeout period

The following code provides an example on how to configure the connection timeout period:

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
// oss.Timeout(10, 120) indicates that the HTTP connection timeout period is 10 seconds and
the HTTP read/write timeout period is 120 seconds. The default HTTP connection timeout peri
od is 30 seconds. The default HTTP read/write timeout period is 60 seconds. A value of 0 in
dicates that the connection never times out.
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>", oss.
Timeout(10, 120))
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
```

Disable CRC

By default, CRC is enabled to ensure data integrity when you upload or download objects. The following code provides an example on how to disable CRC:

Warning We recommend that you do not disable CRC. If you disable CRC, data integrity may be affected during object upload and download.

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>", oss.
EnableCRC(false))
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
```

6.1.2.5.4. Quick start

This topic describes how to use OSS SDK for Go to perform routine operations, such as creating buckets, uploading objects, and downloading objects.

Create buckets

A bucket is a global namespace in OSS. A bucket is a container for objects stored in OSS. The following code provides an example on how to create a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func handleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    endpoint := "http://oss-cn-hangzhou.aliyuncs.com"
    accessKeyId := "<yourAccessKeyId>"
    accessKeySecret := "<yourAccessKeySecret>"
    bucketName := "<yourBucketName>"
    // Create an OSSClient instance.
    client, err := oss.New(endpoint, accessKeyId, accessKeySecret)
    if err ! = nil {
        handleError(err)
    }
    // Create a bucket.
    err = client.CreateBucket(bucketName)
    if err ! = nil {
        handleError(err)
    }
}
```

For more information about how to obtain an AccessKey ID and AccessKey secret, see Obtain an AccessKey pair.

For more information about how to obtain an endpoint, see Obtain an endpoint.

Upload objects

The following code provides an example on how to upload objects to OSS by using stream upload:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func handleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    endpoint := "http://oss-cn-hangzhou.aliyuncs.com"
    accessKeyId := "<yourAccessKeyId>"
    accessKeySecret := "<yourAccessKeySecret>"
    bucketName := "<yourBucketName>"
    // <yourObjectName> indicates the complete path of the object that you want to upload t
o OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
    objectName := "<yourObjectName>"
    // <yourLocalFileName> consists of a local file path and an object name with extension.
Example: /users/local/myfile.txt.
    localFileName := "<yourLocalFileName>"
    // Create an OSSClient instance.
    client, err := oss.New(endpoint, accessKeyId, accessKeySecret)
    if err ! = nil {
        handleError(err)
    }
    // Specify the bucket name.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        handleError(err)
    }
    // Upload the object.
    err = bucket.PutObjectFromFile(objectName, localFileName)
    if err ! = nil {
        handleError(err)
    }
}
```

Download objects

The following code provides an example on how to download an object to a local file:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func handleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    endpoint := "http://oss-cn-hangzhou.aliyuncs.com"
    accessKeyId := "<yourAccessKeyId>"
    accessKeySecret := "<yourAccessKeySecret>"
    bucketName := "<yourBucketName>"
    // <yourObjectName> indicates the complete path of the object that you want to download
from OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
    objectName := "<yourObjectName>"
    downloadedFileName := "<yourDownloadedFileName>"
    // Create an OSSClient instance.
    client, err := oss.New(endpoint, accessKeyId, accessKeySecret)
    if err ! = nil {
        handleError(err)
    }
    // Specify the bucket name.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        handleError(err)
    }
    // Download the object.
    err = bucket.GetObjectToFile(objectName, downloadedFileName)
    if err ! = nil {
        handleError(err)
    }
}
```

List objects

The following code provides an example on how to list objects in a specified bucket. By default, a maximum of 100 objects can be listed.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        HandleError(err)
    }
    // Specify the bucket name.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        HandleError(err)
    }
    // List objects.
    marker := ""
    for {
        lsRes, err := bucket.ListObjects(oss.Marker(marker))
        if err ! = nil {
            HandleError(err)
        }
        // Display the listed objects. By default, 100 records are returned each time.
        for _, object := range lsRes.Objects {
            fmt.Println("Bucket: ", object.Key)
        }
        if lsRes.IsTruncated {
            marker = lsRes.NextMarker
        } else {
            break
        }
    }
}
```

Delete objects

The following code provides an example on how to delete an object:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func handleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // The endpoint of the China (Hangzhou) region is used in this example. Specify the act
ual endpoint.
    endpoint := "http://oss-cn-hangzhou.aliyuncs.com"
    accessKeyId := "<yourAccessKeyId>"
    accessKeySecret := "<yourAccessKeySecret>"
    bucketName := "<yourBucketName>"
    // <yourObjectName> indicates the complete path of the object that you want to delete f
rom OSS. The path must include the extension of the object name. Example: abc/efg/123.jpg.
    objectName := "<yourObjectName>"
    // Create an OSSClient instance.
    client, err := oss.New(endpoint, accessKeyId, accessKeySecret)
    if err ! = nil {
        handleError(err)
    }
    // Specify the bucket name.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        handleError(err)
    }
    // Delete the object.
    err = bucket.DeleteObject(objectName)
    if err ! = nil {
        handleError(err)
    }
}
```

6.1.2.5.5. Buckets

6.1.2.5.5.1. Create buckets

A bucket is a container used to store objects in Object Storage Service (OSS). Each object is contained in a bucket. This topic describes how to create a bucket.

For the complete code used to create a bucket, visit GitHub.

```
package main
    import (
        "fmt"
        "os"
        "github.com/aliyun/aliyun-oss-go-sdk/oss"
    )
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Create a bucket. By default, the storage class of the bucket is Standard, and the AC
L of the bucket is private.
    err = client.CreateBucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.5.2. List buckets

For the complete code used to list buckets, visit GitHub.

List all buckets

Buckets are listed in alphabetical order. You can list all buckets or the buckets that meet specified conditions.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List all buckets.
    marker := ""
    for {
        lsRes, err := client.ListBuckets(oss.Marker(marker))
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        // By default, a maximum of 100 buckets are listed each time.
        for _, bucket := range lsRes.Buckets {
            fmt.Println("Bucket: ", bucket.Name)
        }
        if lsRes.IsTruncated {
            marker = lsRes.NextMarker
        } else {
            break
        }
    }
}
```

List buckets whose names contain a specified prefix

```
// List the buckets whose names contain a specified prefix.
    lsRes, err = client.ListBuckets(oss.Prefix("<yourBucketPrefix>"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the list of buckets.
    fmt.Println("Buckets with prefix: ", lsRes.Buckets)
    for _, bucket := range lsRes.Buckets {
        fmt.Println("Bucket with prefix: ", bucket.Name)
    }
```

List buckets whose names come after a specified marker

```
    // List buckets whose names come after the specified marker.
    lsRes, err = client.ListBuckets(oss.Marker("<yourBucketMarker>"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the list of buckets.
    fmt.Println("My buckets with marker :", lsRes.Buckets)
    for _, bucket := range lsRes.Buckets {
        fmt.Println("Bucket with marker: ", bucket.Name)
    }
```

List a specified number of buckets

```
    // Set the maximum number of buckets to list each time to 500. The default value is 100
. The maximum value is 1000.
    lsRes, err = client.ListBuckets(oss.MaxKeys(500))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the list of buckets.
    fmt.Println("My buckets max num:", lsRes.Buckets)
    for _, bucket := range lsRes.Buckets {
        fmt.Println("Bucket with maxKeys: ", bucket.Name)
    }
```

6.1.2.5.5.3. Manage bucket ACLs

A bucket is a container used to store objects in Object Storage Service (OSS). Every object is contained in a bucket. This topic describes how to configure and query the access control list (ACL) of a bucket.

For the complete code used to manage the ACL of a bucket, visit GitHub.

Configure ACL for a bucket

The following table describes the bucket ACLs.

ACL	Description	Value
Private	Only the owner or authorized users of the bucket can read and write the object.	oss.ACLPrivate
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	oss.ACLPublicRead

ACL	Description	Value
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	oss.ACLPublicReadWrite

The following code provides an example on how to configure the ACL of a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Set the ACL of the bucket to public read.
    err = client.SetBucketACL("<yourBucketName>", oss.ACLPublicRead)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Query the ACL of a bucket

The following code provides an example on how to query the ACL of a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Query the ACL of the bucket.
    aclRes, err := client.GetBucketACL("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Bucket ACL:", aclRes.ACL)
}
```

6.1.2.5.5.4. Delete buckets

Before you delete a bucket, ensure that all objects, LiveChannels, and parts that are generated from multipart upload in the bucket are deleted. The following code provides an example on how to delete a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Delete the bucket.
    err = client.DeleteBucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.5.5. Manage lifecycle rules

Object Storage Service (OSS) allows you to configure lifecycle rules to delete expired objects and parts or convert the storage class of expired objects to Infrequent Access (IA) or Archive to reduce your storage costs. This topic describes how to manage lifecycle rules for buckets.

Background

Each lifecycle rule contains the following information:

- Policy: specifies the mode to match objects and parts.
  - Match by prefix: matches objects and parts by prefix. You can create multiple rules to configure different prefixes. Each prefix must be unique.
  - Match by bucket: matches all objects and parts contained in the bucket. You can create only one rule if you select this method.
- Object lifecycle policy: specifies the validity period or expiration data and the operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired objects are deleted.
  - Expiration date: specifies a date. Objects that are last modified before this date expire and are deleted.
- Part lifecycle policy: specifies the validity period or expiration time and the delete operation to perform on these objects after they expire.
  - Validity period: specifies the number of days within which parts can be retained after they are last modified. After the validity period, expired parts are deleted.
  - Expiration date: specifies a date. Parts that are last modified before this date expire and are deleted.

Lifecycle rules also apply to the parts uploaded by using uploadPart. In this case, the last modified time of an object is the time the multipart upload task is initiated.

Configure lifecycle rules

The following code provides an example on how to configure lifecycle rules:

```
package main
import (
    "fmt"
     "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // rule1 (id:"rule1", enable:true, prefix:"foo/", expiry:Days 3) indicates that objects
whose names contain prefix foo/ expire three days after they are last modified.
    rule1 := oss.BuildLifecycleRuleByDays("rule1", "foo/", true, 3)
    rules := []oss.LifecycleRule{rule1}
    // Configure the lifecycle rules.
    bucketName := "<yourBucketName>"
    err = client.SetBucketLifecycle(bucketName, rules)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

View lifecycle rules

The following code provides an example on how to query the lifecycle rules configured for the bucket named examplebucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // View the lifecycle rules.
    lcRes, err := client.GetBucketLifecycle(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Lifecycle Rules:", lcRes.Rules)
}
```

Delete lifecycle rules

The following code provides an example on how to delete lifecycle rules configured for the bucket named examplebucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Delete the lifecycle rules.
    err = client.DeleteBucketLifecycle(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
```

6.1.2.5.5.6. Hotlink protection

OSS provides hotlink protection to prevent unauthorized domain names from accessing your OSS data. You can configure the Referer field in the HTTP header.

To configure hotlink protection, you must configure the following parameters:

- Referer Whitelist: Only specified domain names are allowed to access OSS resources.
- Allow Empty Referer: If you do not allow empty Refer fields, a request is allowed to access OSS resources only if the request includes the Referer field configured in the HTTP or HTTPS header.

Configure hotlink protection

Run the following code to configure the referer whitelist:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Add a Referer whitelist. Specify that an empty Referer field is not allowed. You can
use an asterisk (*) or a question mark (?) as a wildcard to set the Referer parameter.
    referers := []string{"http://www.aliyun.com",
                         "http://www.???.aliyuncs.com",
                         "http://www. *.com"}
    err = client.SetBucketReferer(bucketName, referers, false)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Query hotlink protection configurations

Run the following code to obtain a referer whiltelist:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Query hotlink protection information.
    refRes, err := client.GetBucketReferer(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Referers: ", refRes.RefererList)
    fmt.Println("AllowEmptyReferer: ", refRes.AllowEmptyReferer)
}
```

Delete hotlink protection configurations

Run the following code to clear a referer whitelist:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Delete hotlink protection configurations. // You cannot delete hotlink protection co
nfigurations directly. To delete hotlink protection configurations, you must create a rule
that allows an empty Referer field to replace the existing rule.
    err = client.SetBucketReferer(bucketName, []string{}, true)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.5.7. Configure logging

You can enable logging to record access to a bucket in log objects. The log objects are stored in a specified bucket.

The log file format is as follows:

```
<TargetPrefix><SourceBucket>-YYYY-mm-DD-HH-MM-SS-UniqueString
```

For the complete code of logging, visit GitHub.

Enable logging

Run the following code to enable bucket access logging:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    targetBucketName := "<yourTargetBucketName>"
    targetPrefix := "<yourTargetPrefix>"
    // Enable logging for the bucket. targetBucketName specifies the bucket that stores log
objects. targetPrefix specifies the prefix of the stored log objects. The log objects are s
tored in the targetPrefix folder.
    err = client.SetBucketLogging(bucketName, targetBucketName, targetPrefix, true)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

View logging configurations

Run the following code to view the access logging configurations for a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // View logging configurations of the bucket.
    logRes, err := client.GetBucketLogging(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Target Bucket: ", logRes.LoggingEnabled.TargetBucket)
    fmt.Println("Target Prefix: ", logRes.LoggingEnabled.TargetPrefix)
}
```

Disable logging

Run the following code to disable access logging for a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    // client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>
")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Disable logging.
    err = client.DeleteBucketLogging(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.5.8. Static website hosting

You can set the static website hosting mode for your bucket. After the configurations take effect, you can use the bucket domain to access this static website and be redirected to a specified index page or error page.

Configure static website hosting

Run the following code to configure static website hosting:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Configure static web hosting. Set the index page to index.html and the error page to
error.html.
    err = client.SetBucketWebsite(bucketName, "index.html", "error.html")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

View static website hosting configurations

Run the following code to view static website hosting configurations:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // View the static website hosting configurations.
    wsRes, err := client.GetBucketWebsite(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("indexWebsite: ", wsRes.IndexDocument.Suffix)
    fmt.Println("errorWebsite: ", wsRes.ErrorDocument.Key)
}
```

Delete static website hosting configurations

Run the following code to delete static website hosting configurations:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Delete the static website hosting configurations.
    err = client.DeleteBucketWebsite(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.5.9. CORS

Cross-origin resource sharing (CORS) allows web applications to access resources that belong to different regions. OSS provides CORS operations to facilitate cross-origin access control.

For the complete CORS rule code, visit GitHub.

Configure CORS rules

Run the following code to configure CORS rules for the specified bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    rule1 := oss.CORSRule{
        AllowedOrigin: []string{"*"},
        AllowedMethod: []string{"PUT", "GET"},
        AllowedHeader: []string{},
        ExposeHeader:  []string{},
        MaxAgeSeconds: 200,
    }
    rule2 := oss.CORSRule{
        AllowedOrigin: []string{"http://www.a.com", "http://www.b.com"},
        AllowedMethod: []string{"POST"},
        AllowedHeader: []string{"Authorization"},
        ExposeHeader:  []string{"x-oss-test", "x-oss-test1"},
        MaxAgeSeconds: 100,
    }
    // Configure the CORS rules.
    err = client.SetBucketCORS(bucketName, []oss.CORSRule{rule1, rule2})
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Query CORS rules

Run the following code to obtain CORS rules:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Query the CORS rules.
    corsRes, err := client.GetBucketCORS(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Bucket CORS:", corsRes.CORSRules)
}
```

Delete CORS rules

Run the following code to delete all CORS rules for the specified bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Delete the CORS rules.
    err = client.DeleteBucketCORS(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.6. Upload objects

6.1.2.5.6.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for PHP provides the following object upload methods:

You can upload objects to OSS by using one of the following methods:

- Simple upload: uploads an object up to 5 GB in size.
- Append upload: uploads an object up to 5 GB in size.
- Resumable upload: supports concurrent upload and resumable upload. You can define the size of each part. This method is suitable for the upload of large objects. You can use this method to upload an object up to 48.8 TB in size.
- Multipart upload: uploads an object up to 48.8 TB in size. This method is suitable for the upload of large objects.

During object upload, you can configure object metadata and view upload progress by using progress bars. For more information, see Use a progress bar.

6.1.2.5.6.2. Simple upload

This topic describes how to use simple upload.

For the complete code used to perform simple upload, visit GitHub.

Upload a string

The following code provides an example on how to upload a string to the exampleobject.txt object in the exampledir directory of the examplebucket bucket:

```
package main
import (
    "fmt"
    "os"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Set the storage class to Standard. The default storage class is Standard.
    storageType := oss.ObjectStorageClass(oss.StorageStandard)
    // Set the object ACL to public read. By default, the object inherits the bucket ACL.
    objectAcl := oss.ObjectACL(oss.ACLPublicRead)
    // Upload the string.
    err = bucket.PutObject("<yourObjectName>", strings.NewReader("yourObjectValue"), storag
eType, objectAcl)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Upload a byte array

The following code provides an example on how to upload a byte array:

```
package main
import (
    "fmt"
    "os"
    "bytes"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Upload the byte array.
    err = bucket.PutObject("<yourObjectName>", bytes.NewReader([]byte("yourObjectValueByteA
rrary")))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Upload a file stream

The following code provides an example on how to upload a file stream:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Read the local file.
    fd, err := os.Open("<yourLocalFile>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    defer fd.Close()
    // Upload the file stream.
    err = bucket.PutObject("<yourObjectName>", fd)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Upload a local file

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Upload the local file.
    err = bucket.PutObjectFromFile("<yourObjectName>", "<yourLocalFile>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.6.3. Append upload

This topic describes how to perform append upload.

You cannot perform the copyObject operation on append objects. If the object to append does not exist, you can call `AppendObject` to create an append object. If the object to append exists, you can call `AppendObject` to append content to the end of the object.

Run the following code to upload a file with append upload:

```
package main
import (
    "fmt"
    "os"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    var nextPos int64 = 0
    // If the object is appended for the first time, the append position is 0. The returned value is the position for the next append. The position to start the next append is the total length of appended bytes and the append object.
    nextPos, err = bucket.AppendObject("<yourObjectName>", strings.NewReader("YourObjectAppendValue1"), nextPos)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Start the second append.
    nextPos, err = bucket.AppendObject("<yourObjectName>", strings.NewReader("YourObjectAppendValue2"), nextPos)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // You can append content to an object multiple times.
}
```

You can specify object metadata when you perform the first append from the position of 0. Object metadata cannot be specified during subsequent append operations.

```
    // Specify the metadata of a new object when you perform the first append.
    nextPos, err = bucket.AppendObject("<yourObjectName>", strings.NewReader("YourObjectValue"), 0, oss.Meta("MyProp", "MyPropVal"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
```

6.1.2.5.6.4. Resumable upload

If the system stops responding during multipart upload, you can resume the upload by using the ListMultipartUploads and ListParts operations to retrieve all multipart upload tasks on an object and list the uploaded parts in each task. This method allows an upload task to be resumed from the last uploaded part.

The progress of the current upload is recorded in the checkpoint file during the upload process. If the upload of a part fails during the process, the next upload attempt starts from the recorded position in the checkpoint file. The checkpoint file is deleted after the resumable upload task is complete.

> **Note**
>
> - The SDK records the upload progress in the checkpoint file. Make sure that you have write permissions on the checkpoint file. The checkpoint file contains a checksum. This file cannot be edited. If the checkpoint file is damaged, you must upload all parts again.
> - If the object being uploaded is modified, you must upload the entire object again.

You can use `Bucket.UploadFile` to perform resumable upload. The following table describes the parameters of this operation.

Parameter	Description
objectKey	The name of the object to upload to OSS.
filePath	The local file path from which to upload the object.
partSize	The size of each part. Valid values: 100 KB to 5 GB.
options	The optional parameters, including: • Routines: the number of concurrent upload threads. The default value is 1, indicating that only one thread is used to upload the parts. • Checkpoint: specifies whether to enable resumable upload and the path of the checkpoint file. By default, resumable upload is disabled. For example, `oss.Checkpoint(true, "")` indicates that resumable upload is enabled and the checkpoint file is `file.cp` contained in the same directory as the source local file. `file` is a variable that indicates the local file name. You can also use `oss.Checkpoint(true, "your-cp-file.cp")` to specify the checkpoint file. • For other object metadata, see Manage object metadata.

The following code provides an example on how to perform resumable upload by using multipart upload:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // The part size is 100 KB. Start resumable upload. Upload the parts by using three con
current threads.
    // <yourObjectName> is equivalent to objectKey and indicates the complete path of the o
bject that you want to upload to OSS. The path must include the extension of the object nam
e. Example: abc/efg/123.jpg.
    // LocalFile is the filePath value. 100*1024 is the partSize value.
    err = bucket.UploadFile("<yourObjectName>", "LocalFile", 100*1024, oss.Routines(3), oss
.Checkpoint(true, ""))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.6.5. Multipart upload

OSS allows you to use multipart upload to split an object into several parts and upload them separately. After all parts are uploaded, you can combine the uploaded parts into a complete object to complete the upload.

To implement multipart upload, perform the following operations:

1. Initiate a multipart upload task.

   Call the ossClient.initiateMultipartUpload method to obtain a unique upload ID in OSS.

2. Upload the parts.

   Call the ossClient.uploadPart method to upload the parts.

> **Note**
>
> - Part numbers identify the relative positions of parts in an object that share the same upload ID. If you have uploaded a part and used its part number again to upload another part, the latter part overwrites the former part.
> - OSS includes the MD5 hash of part data in the ETag header and returns the MD5 hash to the user.
> - OSS calculates the MD5 hash of uploaded data and compares it with the MD5 hash calculated by the SDK. If the two hashes are different, the InvalidDigest error code is returned.

3. Complete the multipart upload task.

   After all parts are uploaded, call the ossClient.completeMultipartUpload method to combine these parts into a complete object.

The following code provides an example on how to perform multipart upload:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    locaFilename := "<yourLocalFilename>"
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    chunks, err := oss.SplitFileByPartNum(locaFilename, 3)
    fd, err := os.Open(locaFilename)
    defer fd.Close()
    // Set the storage class to Standard. The default storage class is Standard.
    storageType := oss.ObjectStorageClass(oss.StorageStandard)
    // Set the storage class to Archive.
    // storageType := oss.ObjectStorageClass(oss.StorageArchive)
    // Step 1: Initiate a multipart upload task. Set the storage class to Standard.
    imur, err := bucket.InitiateMultipartUpload(objectName, storageType)
    // Step 2: Upload the parts.
    var parts []oss.UploadPart
    for _, chunk := range chunks {
        fd.Seek(chunk.Offset, os.SEEK_SET)
        // Call the UploadPart method to upload each part.
        part, err := bucket.UploadPart(imur, fd, chunk.Size, chunk.Number)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        parts = append(parts, part)
    }
    // Set the object ACL to public read. By default, the object inherits the bucket ACL.
    objectAcl := oss.ObjectACL(oss.ACLPublicRead)
    // Step 3: Complete the multipart upload task. Set the object ACL to public read.
    cmur, err := bucket.CompleteMultipartUpload(imur, parts, objectAcl)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("cmur:", cmur)
}
```

Cancel a multipart upload task

You can call the bucket.AbortMultipartUpload method to cancel a multipart upload task. If you cancel a multipart upload task, you cannot use the upload ID to upload any parts. The uploaded parts are deleted.

The following code provides an example on how to cancel a multipart upload task:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Initiate a multipart upload task.
    imur, err := bucket.InitiateMultipartUpload("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Cancel the multipart upload task.
    err = bucket.AbortMultipartUpload(imur)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

List uploaded parts

The following code provides an example on how to list the parts that are uploaded during a specified multipart upload task:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
```

```
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    locaFilename := "<yourLocalFilename>"
    uploadID := "<yourUploadID>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Split the local file. In this example, the local file is split into three parts.
    chunks, err := oss.SplitFileByPartNum(locaFilename, 3)
    fd, err := os.Open(locaFilename)
    defer fd.Close()
    // Initiate a multipart upload task.
    imur, err := bucket.InitiateMultipartUpload(objectName)
    uploadID = imur.UploadID
    fmt.Println("InitiateMultipartUpload UploadID: ", uploadID)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Upload the parts.
    var parts []oss.UploadPart
    for _, chunk := range chunks {
        fd.Seek(chunk.Offset, os.SEEK_SET)
        // Call the UploadPart method to upload each part.
        part, err := bucket.UploadPart(imur, fd, chunk.Size, chunk.Number)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        fmt.Println("UploadPartNumber: ", part.PartNumber, ", ETag: ", part.ETag)
        parts = append(parts, part)
    }
    // List the uploaded parts based on the result obtained by using the InitiateMultipartU
ploadResult operation.
    lsRes, err := bucket.ListUploadedParts(imur)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the uploaded parts.
    fmt.Println("\nParts:", lsRes.UploadedParts)
    for _, upload := range lsRes.UploadedParts {
        fmt.Println("List PartNumber:  ", upload.PartNumber, ", ETag: " ,upload.ETag, ", La
stModified: ", upload.LastModified)
    }
    // List all the uploaded parts based on the result that is obtained by using the Initia
teMultipartUploadResult operation. The result is generated based on the specified object na
```

```
me and upload ID. In this case, the object name and upload ID are known.
    var imur_with_uploadid oss.InitiateMultipartUploadResult
    imur_with_uploadid.Key = objectName
    imur_with_uploadid.UploadID = uploadID
    // List all the uploaded parts.
    lsRes, err = bucket.ListUploadedParts(imur_with_uploadid)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the uploaded parts.
    fmt.Println("\nListUploadedParts by UploadID: ", uploadID)
    for _, upload := range lsRes.UploadedParts {
        fmt.Println("List PartNumber:  ", upload.PartNumber, ", ETag: " ,upload.ETag, ", La
stModified: ", upload.LastModified)
    }
    // Complete the multipart upload task.
    cmur, err := bucket.CompleteMultipartUpload(imur, parts)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("cmur:", cmur)
}
```

List multipart upload tasks

You can call the `Bucket.ListMultipartUploads` method to list all ongoing multipart upload tasks that are initiated but not completed or that are canceled. The following table describes the parameters you can configure.

Parameter	Description
Delimiter	The character used to group objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in CommonPrefixes.
MaxUploads	The maximum number of multipart upload tasks to list this time. The default value is 1000. The maximum value is 1000.
KeyMarker	Specifies the key-marker value from which to start the list. Multipart upload tasks are listed in alphabetical order of their object names. You can use this parameter with the UploadIDMarker parameter to specify the start position to list the returned results.
Prefix	Specifies the prefix that returned object names must contain. Note that if you use a prefix for a query, the returned object names contain the prefix.

Parameter	Description

UploadIDMarker	The start position from which to list the returned results. This parameter is used together with the KeyMarker parameter.
	• This parameter is ignored if the KeyMarker parameter is not set.
	• If the KeyMarker parameter is set, the response includes the following tasks:
	  ○ Specifies the key-marker value from which to start the list. Multipart upload tasks are listed in alphabetical order of their object names.
	  ○ All multipart upload tasks in which the object names come after the KeyMarker value and the upload IDs are greater than the UploadIDMarker value.

- List multipart upload tasks by using default parameter values

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>"
)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket to which to upload the object.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List all multipart upload tasks.
    keyMarker := ""
    uploadIdMarker := ""
    for {
        // By default, up to 1,000 records are listed each time.
        lsRes, err := bucket.ListMultipartUploads(oss.KeyMarker(keyMarker), oss.UploadIDM
arker(uploadIdMarker))
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        // Display all multipart upload tasks.
        for _, upload := range lsRes.Uploads {
            fmt.Println("Upload: ", upload.Key, ", UploadID: ",upload.UploadID)
        }
        if lsRes.IsTruncated {
            keyMarker = lsRes.NextKeyMarker
            uploadIdMarker = lsRes.NextUploadIDMarker
        } else {
            break
        }
    }
}
```

- List multipart upload tasks by specifying a prefix

```
    lsRes, err := bucket.ListMultipartUploads(oss.Prefix("<yourObjectNamePrefix>"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Uploads:", lsRes.Uploads)
```

- List up to 100 multipart upload tasks

```
    lsRes, err := bucket.ListMultipartUploads(oss.MaxUploads(100))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Uploads:", lsRes.Uploads)
```

- List multipart upload tasks by specifying a prefix and the maximum number of records to returned

```
    lsRes, err := bucket.ListMultipartUploads(oss.Prefix("<yourObjectNamePrefix>"), oss.M
axUploads(100))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Uploads:", lsRes.Uploads)
```

6.1.2.5.6.6. Use a progress bar

Progress bars are used to indicate the progress of an upload or download.

The following code provides an example on how to use a progress bar when you call Bucket.PutObjectFromFile to upload an object:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
// Define a progress bar listener.
type OssProgressListener struct {
}
// Define the progress event handler.
func (listener *OssProgressListener) ProgressChanged(event *oss.ProgressEvent) {
    switch event.EventType {
    case oss.TransferStartedEvent:
        fmt.Printf("Transfer Started, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    case oss.TransferDataEvent:
        fmt.Printf("\rTransfer Data, ConsumedBytes: %d, TotalBytes %d, %d%%.",
            event.ConsumedBytes, event.TotalBytes, event.ConsumedBytes*100/event.TotalBytes
)
    case oss.TransferCompletedEvent:
        fmt.Printf("\nTransfer Completed, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    case oss.TransferFailedEvent:
        fmt.Printf("\nTransfer Failed, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    default:
    }
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    localFile := "<yourLocalFile>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // View the upload progress information while you upload an object.
    err = bucket.PutObjectFromFile(objectName, localFile, oss.Progress(&OssProgressListener
{}))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.7. Download objects

6.1.2.5.7.1. Overview

Objects are the basic unit for data operations in OSS. OSS SDK for Go provides a variety of object download methods.

For the complete code that is used to download objects, visit GitHub.

You can use one of the following methods to download objects:

- Streaming download
- Range download
- Download to local files
- Resumable download
- Conditional download

You can view the download progress by using progress bars. For more information, see Use a progress bar.

6.1.2.5.7.2. Streaming download

This topic describes how to use streaming download.

Download an object to a stream

The following code provides an example on how to download an object to a stream:

```
package main
import (
    "fmt"
    "os"
    "io/ioutil"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Download the object to a stream.
    body, err := bucket.GetObject("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // If you do not close the connection after it is used, connection leaks may occur. Con
sequently, no connections are available and the program cannot run properly.
    defer body.Close()
    data, err := ioutil.ReadAll(body)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("data:", string(data))
}
```

Download an object to the buffer

The following code provides an example on how to download an object to the buffer:

```
package main
import (
    "fmt"
    "os"
    "io"
    "bytes"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Download the object to the buffer.
    body, err := bucket.GetObject("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    defer body.Close()
    buf := new(bytes.Buffer)
    io.Copy(buf, body)
    fmt.Println("buf:", buf)
}
```

Download an object to a local file stream

The following code provides an example on how to download a specified object to a local file stream:

```
package main
import (
    "fmt"
    "os"
    "io"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Download the object to a local file stream.
    body, err := bucket.GetObject("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    defer body.Close()
    fd, err := os.OpenFile("LocalFile", os.O_WRONLY|os.O_CREATE, 0660)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    defer fd.Close()
    io.Copy(fd, body)
}
```

6.1.2.5.7.3. Range download

If you need only part of the data in an object, you can use range download to download data within the specified range.

Specify a valid range

The following code provides an example on how to specify a valid range to download data:

```
package main
import (
  "fmt"
  "os"
  "io/ioutil"
  "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
  // Create an OSSClient instance.
  client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
  if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
  }
  // Specify the name of the bucket.
  bucket, err := client.Bucket("<yourBucketName>")
  if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
  }
  // Query the data that is within the range from byte 15 to byte 35, which includes a tota
l of 21 bytes.
  If the specified range is invalid, for example, the specified range includes a negative n
umber, or the specified value is larger than the object size, the entire object is download
ed.
  body, err := bucket.GetObject("<yourObjectName>", oss.Range(15, 35))
  if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
  }
  // If you do not close the connection after it is used, connection leaks may occur. Conse
quently, no connections are available and the program cannot run properly.
  defer body.Close()
  data, err := ioutil.ReadAll(body)
  if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
  }
  fmt.Println("data:", string(data))
}
```

Specify an invalid range

The valid range for an object whose size is 1,000 bytes is from byte 0 to byte 999. If the specified range is not within the range, the range does not take effect. Then, OSS returns the 200 HTTP status code and the data of the entire object. The following list provides examples of invalid requests and the returned results:

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.
- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns the 200 HTTP status code and the data of the entire object.

Compatible download

If you add x-oss-range-behavior:standard to the request header, the download behavior is modified when the specified range is not within the valid range. Example: Use range download to download an object whose size is 1,000 bytes.

- If you set Range: bytes to 500-2000, the value at the end of the range is invalid. Then, OSS returns HTTP status code 206 and the data that is within the range from byte 500 to byte 999.
- If you set Range: bytes to 1000-2000, the value at the start of the range is invalid. Then, OSS returns HTTP status code 416 and error code InvalidRange.

The following code provides an example on how to specify compatible behaviors to download data by range:

```
package main
import (
    "fmt"
    "io/ioutil"
    "os"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Upload 1,000 bytes.
    strContent := ""
    for i := 0; i < 100; i++ {
        strContent += "abcdefghij"
    }
    fmt.Printf("content len:%d\n", len(strContent))
    // Upload a string.
    err = bucket.PutObject("<yourObjectName>", strings.NewReader(strContent))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // If you set Range: bytes to 500-2000, the value at the end of the range is invalid. O
SS returns the 206 HTTP status code and the data that is within the range from byte 500 to
byte 999.
    // If you set Range: bytes to 1000-2000, the value at the start of the range is invalid
. OSS returns the 416 HTTP status code and the error code InvalidRange.
    body, err := bucket.GetObject("<yourObjectName>", oss.Range(500, 2000), oss.RangeBehavi
or("standard"))
    if err ! = nil {
```

```
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // If you do not close the connection after it is used, connection leaks may occur. Con
sequently, no connections are available and the program cannot run properly.
    defer body.Close()
    data, err := ioutil.ReadAll(body)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    if len(data) ! = 500 {
        fmt.Println("read data error, len:%d", len(data))
        os.Exit(-1)
    }
    fmt.Println("data:", string(data))
}
```

6.1.2.5.7.4. Download to local files

This topic describes how to download an object to a local file.

The following code provides an example on how to download a specified object to a local file:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Download the object to the local file.
    err = bucket.GetObjectToFile("<yourObjectName>", "LocalFile")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.7.5. Resumable download

You may fail to download a large object if the network is unstable or if the program stops responding. In some cases, you may still fail to download the object even after multiple attempts. To solve this problem, OSS provides the resumable download feature.

To enable resumable download, you need to split the object you want to download into multiple parts and download them separately. After you have downloaded all parts, these parts will be combined into a complete object.

During the download, the download progress is recorded in a checkpoint file. If the download of a part fails, the next download starts from the position recorded in the checkpoint file. The checkpoint file is deleted after resumable download is complete.

> **Note**
>
> - The SDK records the download progress in the checkpoint file. Ensure that you have write permissions on the checkpoint file. The checkpoint file contains a checksum. This file cannot be edited. If the checkpoint file is damaged, you must download the entire object again.
> - If the object being downloaded is modified (the ETag value of the object changes) or some parts are missing or modified, you must download the entire object again.

You can use `Bucket.DownloadFile` to download an object by using resumable download. The following table describes the parameters of this operation.

Parameter	Description
objectKey	The name of the object to download.
filePath	The local file path to which to download the object.
partSize	The size of each part. The part size ranges from 1 byte to 5 GB.

Parameter	Description
options	The optional parameters, including: • Routines: the number of concurrent download threads. The default value is 1, indicating that only one thread is used to download parts. • Checkpoint: specifies whether resumable download is enabled and the path of the checkpoint file. By default, resumable download is disabled. For example, `oss.Checkpoint(true, "")` indicates that resumable download is enabled and the checkpoint file is the `file.cp` file contained in the same directory as the destination local file. `file` is a variable that indicates the local file name. You can also use `oss.Checkpoint(true, "your-cp-file.cp")` to specify the checkpoint file. • Conditions: conditions for multipart download. For more information about the conditions, seeManage object metadata.

Run the following code for resumable download:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Start resumable download. Download the parts by using three threads concurrently.
    // yourObjectName is equivalent to objectKey and indicates the complete path of the obj
ect that you want to download from OSS. The path must include the extension of the object n
ame. Example: abc/efg/123.jpg.
    // LocalFile is the filePath value. 100*1024 is the partSize value.
    err = bucket.DownloadFile("<yourObjectName>", "LocalFile", 100*1024, oss.Routines(3), o
ss.Checkpoint(true, ""))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.7.6. Conditional download

OSS allows you to configure one or more conditions for object downloads. If the specified conditions are met, the object can be downloaded. If the specified conditions are not met, an error is returned and the object cannot be downloaded.

The following table describes the download conditions.

Parameter	Description	Configuration method
IfModifiedSince	If the specified time is earlier than the time the object is modified, the object can be downloaded. Otherwise, error code 304 Not modified is returned.	oss.IfModifiedSince

Parameter	Description	Configuration method
IfUnmodifiedSince	If the specified time is later than or equal to the time the object is modified, the object can be downloaded. Otherwise, error code 412 Precondition failed is returned.	oss.IfUnmodifiedSince
IfMatch	If the specified ETag matches that of an object, the object can be downloaded. Otherwise, error code 412 Precondition failed is returned.	oss.IfMatch
IfNoneMatch	If the specified ETag does not match that of an object, the object can be downloaded. Otherwise, error code 304 Not modified is returned.	oss.IfNoneMatch

You can use If-Modified-Since and If-Unmodified-Since as object download conditions at the same time. You can use If-Match and If-None-Match as object download conditions at the same time. To obtain the ETag value of an object, use the Bucket.GetObjectDetailedMeta method.

You can use Bucket.GetObjectDetailedMeta to Obtain the ETag.

```
package main
import (
    "fmt"
    "os"
    "time"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Configure the download conditions.
    date := time.Date(2015, time.November, 10, 23, 0, 0, 0, time.UTC)
    // The object is not downloaded if it does not meet the specified conditions.
    err = bucket.GetObjectToFile("<yourObjectName>", "LocalFile", oss.IfModifiedSince(date)
)
    if err == nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // The object is downloaded if it meets the specified conditions.
    err = bucket.GetObjectToFile("<yourObjectName>", "LocalFile", oss.IfUnmodifiedSince(dat
e))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

6.1.2.5.7.7. Use a progress bar

Progress bars are used to indicate the progress of an upload or download.

The following code provides an example on how to use a progress bar when you use Bucket.GetObjectToFile to download an object:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
// Define the progress bar listener.
```

```
type OssProgressListener struct {
}
// Define the progress event handler.
func (listener *OssProgressListener) ProgressChanged(event *oss.ProgressEvent) {
    switch event.EventType {
    case oss.TransferStartedEvent:
        fmt.Printf("Transfer Started, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    case oss.TransferDataEvent:
        fmt.Printf("\rTransfer Data, ConsumedBytes: %d, TotalBytes %d, %d%%.",
            event.ConsumedBytes, event.TotalBytes, event.ConsumedBytes*100/event.TotalBytes
)
    case oss.TransferCompletedEvent:
        fmt.Printf("\nTransfer Completed, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    case oss.TransferFailedEvent:
        fmt.Printf("\nTransfer Failed, ConsumedBytes: %d, TotalBytes %d.\n",
            event.ConsumedBytes, event.TotalBytes)
    default:
    }
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    localFile := "<yourLocalFile>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // View the download progress while you download an object.
    err = bucket.GetObjectToFile(objectName, localFile, oss.Progress(&OssProgressListener{}
))
    if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
    }
    fmt.Println("Transfer Completed.")
}
```

6.1.2.5.8. Manage objects

6.1.2.5.8.1. Overview

You can manage objects in a bucket by using a variety of operations including SetObjectAcl, GetObjectAcl, ListObjects, DeleteObject, and CopyObject.

By using the preceding operations, you can perform the following operations:

- Determine whether objects exist
- Manage object ACLs
- Manage object metadata
- List objects
- Delete objects
- Copy objects

6.1.2.5.8.2. Determine whether objects exist

This topic describes how to determine whether an object exists.

Run the following code to determine whether a specified object exists:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Determine whether the object exists.
    isExist, err := bucket.IsObjectExist("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Exist:", isExist)
}
```

6.1.2.5.8.3. Manage object ACLs

This topic describes how to manage the access control list (ACL) of an object.

For the complete code used to manage the ACL of an object, visit GitHub.

The following table describes the ACLs that can be configured for objects.

ACL	Description	Value
Inherited from bucket	The ACL of an object is the same as that of the bucket in which the object is stored.	oss.ACLDefault
Private	Only the owner or authorized users of the bucket can read and write the object.	oss.ACLPrivate
Public read	Only the owner or authorized users of this bucket can write the object. Other users, including anonymous users can only read the object. Exercise caution when you use this ACL.	oss.ACLPublicRead
Public read/write	Any users, including anonymous users can read and write the object. Exercise caution when you use this ACL.	oss.PublicReadWrite

The ACL privileges of objects take precedence over that of buckets. For example, if the ACL of a bucket is private, while the object ACL is public read-write, all users can read and write the object. If an object is not configured with an ACL, its ACL is the same as that of its bucket by default.

The following code provides a complete example on how to configure and query the ACL of an object:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Configure ACL for the object.
    err = bucket.SetObjectACL("<yourObjectName>", oss.ACLPublicReadWrite)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Query the ACL of the object.
    aclRes, err := bucket.GetObjectACL("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Object ACL:", aclRes.ACL)
}
```

6.1.2.5.8.4. Manage object metadata

This topic describes how to use OSS SDK for Go to configure, modify and query object metadata.

For the complete code used to manage object metadata, visit GitHub.

Configure object metadata

You can configure the metadata of an object when you upload the object. The following table describes the metadata that you can configure.

Parameter	Description
CacheControl	Specifies the caching behavior of a web page when the object is downloaded.

Parameter	Description
ContentDisposition	Specifies the name of the object when it is downloaded.
ContentEncoding	Specifies the encoding format that is used when the object is downloaded.
Expires	Specifies the expiration time of the cache in GMT.
ServerSideEncryption	Specifies the server-side encryption algorithm to use when OSS creates the object. Valid value: AES256.
ObjectACL	Specifies the ACL of the created object.
Meta	Specifies the user metadata of the object. The parameters of user metadata are prefixed with `X-Oss-Meta-`.

The following code provides an example on how to configure object metadata:

```
package main
import (
    "fmt"
    "os"
    "time"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Configure object metadata: Set the expiration time to 23:00:00, 10 January 2049 in G
MT, ACL to public read, and MyProp to MyPropVal as user metadata.
    expires := time.Date(2049, time.January, 10, 23, 0, 0, 0, time.UTC)
    options := []oss.Option{
        oss.Expires(expires),
        oss.ObjectACL(oss.ACLPublicRead),
        oss.Meta("MyProp", "MyPropVal"),
    }
    // Use a data stream to upload the object.
    err = bucket.PutObject("<yourObjectName>", strings.NewReader("MyObjectValue"), options.
..)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Query the object metadata.
    props, err := bucket.GetObjectDetailedMeta("<yourObjectName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Object Meta:", props)
}
```

Modify object metadata

The following code provides an example on how to modify a single or multiple object metadata parameters at a time:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Modify a single object metadata parameter at a time.
    err = bucket.SetObjectMeta(objectName, oss.Meta("MyMeta", "MyMetaValue1"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Modify multiple object metadata parameters at a time.
    options := []oss.Option{
        oss.Meta("MyMeta", "MyMetaValue2"),
        oss.Meta("MyObjectLocation", "HangZhou"),
    }
    err = bucket.SetObjectMeta(objectName, options...)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Query the object metadata.
    props, err := bucket.GetObjectDetailedMeta(objectName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Object Meta:", props)
}
```

Obtain object metadata

The following code provides an example on how to obtain object metadata:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Query the object metadata.
    props, err := bucket.GetObjectDetailedMeta(objectName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Object Meta:", props)
}
```

6.1.2.5.8.5. List objects

This topic describes how to list the objects that are contained in a bucket.

Objects in a bucket are sorted alphabetically. You can use `Bucket.ListObjects` to list the objects in a bucket. The following table describes the parameters for Bucket.ListObjects.

Parameter	Description
delimiter	Groups objects by name. Objects whose names contain the same string from the prefix and the next occurrence of the delimiter are grouped as a single result element in commonPrefixes.
prefix	Specifies the prefix that returned object names must contain.
maxKeys	Specifies the maximum number of objects that can be listed each time. The default value is 100. The maximum value is 1000.
marker	Specifies the name of the object after which the list begins.

For the complete code that is used to list objects, visit GitHub.

Simple list

You can use the default parameters to query the list of objects in a bucket. By default, a maximum of 100 objects are listed. The following code provides an example on how to perform simple list:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        HandleError(err)
    }
    // Specify the name of the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        HandleError(err)
    }
    // List all objects.
    marker := ""
    for {
        lsRes, err := bucket.ListObjects(oss.Marker(marker))
        if err ! = nil {
            HandleError(err)
        }
        // Display the listed objects. By default, a maximum of 100 records are returned ea
ch time.
        for _, object := range lsRes.Objects {
            fmt.Println("Bucket: ", object.Key)
        }
        if lsRes.IsTruncated {
            marker = lsRes.NextMarker
        } else {
            break
        }
    }
}
```

List a specified number of objects

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Set the maximum number of objects to list and list the objects.
    lsRes, err := bucket.ListObjects(oss.MaxKeys(200))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the listed objects.
    fmt.Println("Objects:", lsRes.Objects)
    for _, object := range lsRes.Objects {
        fmt.Println("Object:", object.Key)
    }
}
```

List objects whose names contain a specified prefix

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List the objects whose names contain the specified prefix. By default, a maximum of
100 objects are listed.
    lsRes, err := bucket.ListObjects(oss.Prefix("my-object-"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the listed objects.
    fmt.Println("Objects:", lsRes.Objects)
    for _, object := range lsRes.Objects {
        fmt.Println("Object:", object.Key)
    }
}
```

List objects whose names come after a specified marker

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List the objects whose names come after the specified marker. By default, a maximum
of 100 objects are listed.
    lsRes, err := bucket.ListObjects(oss.Marker("my-object-xx"))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Display the listed objects.
    fmt.Println("Objects:", lsRes.Objects)
    for _, object := range lsRes.Objects {
        fmt.Println("Object:", object.Key)
    }
}
```

List all objects by page

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List all objects by page, with up to 200 objects on each page.
    marker := oss.Marker("")
    for {
        lsRes, err := bucket.ListObjects(oss.MaxKeys(200), marker)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        marker = oss.Marker(lsRes.NextMarker)
        fmt.Println("Objects:", lsRes.Objects)
        if ! lsRes.IsTruncated {
            break
        }
    }
}
```

List objects whose names come after a specified marker by page

The following code provides an example on how to list the objects that follow a specified marker by page. The maximum number of objects that can be listed on each page is specified by MaxKeys.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List the objects whose names come after the specified marker by page, with up to 50
objects on each page.
    marker = oss.Marker("my-object-xx")
    for {
        lsRes, err := bucket.ListObjects(oss.MaxKeys(50), marker)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        marker = oss.Marker(lsRes.NextMarker)
        fmt.Println("Objects:", lsRes.Objects)
        if ! lsRes.IsTruncated {
            break
        }
    }
}
```

List objects whose names contain a specified prefix by page

The following code provides an example on how to list the objects whose names contain a specified prefix by page. The maximum number of objects to list on each page is specified by maxKeys.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List the objects whose names contain the specified prefix by page, with up to 80 obj
ects on each page.
    prefix := oss.Prefix("my-object-")
    marker := oss.Marker("")
    for {
        lsRes, err := bucket.ListObjects(oss.MaxKeys(80), marker, prefix)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        prefix = oss.Prefix(lsRes.Prefix)
        marker = oss.Marker(lsRes.NextMarker)
        fmt.Println("Objects:", lsRes.Objects)
        if ! lsRes.IsTruncated {
            break
        }
    }
}
```

List the information about the objects whose names contain a specified prefix

The following code provides an example on how to list the information about the objects whose names contain a specified prefix. Such information includes the object size, the time when the object was last modified, and the object name.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Traverse the objects.
    marker := oss.Marker("")
    prefix := oss.Prefix("<yourObjectPrefix>")
    for {
        lor, err := bucket.ListObjects(marker, prefix)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        for _, object := range lor.Objects {
            fmt.Printf("%s %d %s\n", object.LastModified, object.Size, object.Key)
        }
        prefix = oss.Prefix(lor.Prefix)
        marker = oss.Marker(lor.NextMarker)
        if ! lor.IsTruncated {
            break
        }
    }
}
```

List the information about the subfolders whose names contain a specified prefix

The following code provides an example on how to list the information about the subfolders whose names contain a specified prefix:

```
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    marker := oss.Marker("")
    prefix := oss.Prefix("<yourDirPrefix>")
    for {
        lor, err := bucket.ListObjects(marker, prefix, oss.Delimiter("/"))
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        for _, dirName := range lor.CommonPrefixes {
            fmt.Println(dirName)
        }
        prefix = oss.Prefix(lor.Prefix)
        marker = oss.Marker(lor.NextMarker)
        if ! lor.IsTruncated {
            break
        }
    }
}
```

6.1.2.5.8.6. Delete objects

This topic describes how to delete objects.

Warning Deleted objects cannot be recovered. Exercise caution when you delete objects.

For the complete code used to delete objects, visit GitHub.

Delete a single object

The following code provides an example on how to delete an object named *exampleobject.txt* from a bucket named examplebucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Delete a single object. objectName indicates the full path that includes the extensi
on of the object. Example: abc/efg/123.jpg.
    // To delete a folder, set objectName to the folder name. If the folder is not empty, y
ou must delete all objects from the folder before you can delete it.
    err = bucket.DeleteObject(objectName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Delete multiple objects

You can call the `Bucket.DeleteObjects` operation to delete multiple objects and specify the `DeleteObjectsQuiet` parameter to specify whether to return results of delete operations. By default, information of deleted objects is returned.

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify that information of deleted objects is returned.
    delRes, err := bucket.DeleteObjects([]string{"my-object-1", "my-object-2"})
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    fmt.Println("Deleted Objects:", delRes.DeletedObjects)
    // Specify that results of delete operations are not returned.
    _, err = bucket.DeleteObjects([]string{"my-object-3", "my-object-4"},
    oss.DeleteObjectsQuiet(true))
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Delete objects whose names contain a specified prefix

The following code provides an example on how to delete objects whose names contain a specified prefix:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify the name of the bucket.
    bucket, err := client.Bucket("<yourBucketName>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // List and delete objects whose names contain the specified prefix.
    marker := oss.Marker("")
    prefix := oss.Prefix("<yourObjectPrefix>")
    count := 0
    for {
        lor, err := bucket.ListObjects(marker, prefix)
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        objects := []string{}
        for _, object := range lor.Objects {
            objects = append(objects, object.Key)
        }
        delRes, err := bucket.DeleteObjects(objects, oss.DeleteObjectsQuiet(true))
        if err ! = nil {
            fmt.Println("Error:", err)
            os.Exit(-1)
        }
        if len(delRes.DeletedObjects) > 0 {
            fmt.Println("these objects deleted failure,", delRes.DeletedObjects)
            os.Exit(-1)
        }
        count += len(objects)
        prefix = oss.Prefix(lor.Prefix)
        marker = oss.Marker(lor.NextMarker)
        if ! lor.IsTruncated {
            break
        }
    }
    fmt.Printf("success,total delete object count:%d\n", count)
}
```

6.1.2.5.8.7. Copy objects

This topic describes how to copy objects.

For the complete code that is used to copy objects, visit GitHub.

Copy objects within a bucket

The following code provides an example on how to copy an object within a bucket:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    destObjectName := "<yourDestObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Copy the object to another object within the bucket.
    _, err = bucket.CopyObject(objectName, destObjectName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Copy objects across buckets

You can copy objects from other buckets to the current bucket or copy objects from the current bucket to other buckets. The following code provides an example on how to copy objects across buckets:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    srcBucketName := "<yourSrcBucketName>"
    dstBucketName := "<yourDstBucketName>"
    srcObjectName := "<yourSrcObjectName>"
    dstObjectName := "<yourDstObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Copy srcObjectName from srcBucketName to the current bucket.
    bucket.CopyObjectFrom(srcBucketName, srcObjectName, dstObjectName)
    if err ! = nil {
        fmt.Println("CopyObjectFrom Error:", err)
        os.Exit(-1)
    }
    // Copy srcObjectName from the current bucket to dstBucketName.
    bucket.CopyObjectTo(dstBucketName, dstObjectName, srcObjectName)
    if err ! = nil {
        fmt.Println("CopyObjectTo Error:", err)
        os.Exit(-1)
    }
}
```

Process object metadata during object copy

You can use MetadataDirective to process object metadata during object copy. Valid values of MetadataDirective:

- oss.MetaCopy: This is the default value. Copy metadata of the source object. The metadata of the destination object is the same as the metadata of the source object.
- oss.MetaReplace: overwrites the source object metadata by using the specified object metadata.

Notice All metadata of the source object is overwritten if you use oss.MetaReplace. The metadata of the source object cannot be recovered. Exercise caution when you perform this operation.

The following table describes the parameter you can configure when you set MetadataDirective to oss.MetaReplace.

Parameter	Description
CacheControl	Specifies the caching behavior of a web page when the destination object is downloaded.
ContentDisposition	Specifies the name of the destination object when it is downloaded.
ContentEncoding	Specifies the encoding format that is used when the destination object is downloaded.
Expires	Specifies the expiration time of the cache in GMT.
ServerSideEncryption	Specifies the server-side encryption algorithm that is used when OSS creates the destination object. Valid value: AES256.
ObjectACL	Specifies the ACL of the destination object.
Meta	Specifies the user metadata of the destination object. The parameters of user metadata are prefixed with `X-Oss-Meta-` .

The following code provides an example on how to process object metadata during object copy:

```
package main
import (
    "fmt"
    "os"
    "time"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    destObjectName := "<yourDestObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // Specify metadata for the destination object.
    expires := time.Date(2049, time.January, 10, 23, 0, 0, 0, time.UTC)
    options := []oss.Option{
        oss.MetadataDirective(oss.MetaReplace),
        oss.Expires(expires),
        oss.ObjectACL(oss.ACLPublicRead),
        oss.Meta("MyMeta", "MyMetaValue")}
    // Overwrite the metadata of the source object by using the specified metadata.
    _, err = bucket.CopyObject(objectName, destObjectName, options...)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
}
```

Conditional copy

OSS allows you to configure one or more conditions for object copy. If the specified conditions are met, the object can be copied. If the specified conditions are not met, an error code is returned and the object cannot be copied. The following table describes the conditions that you can configure in object copy.

Parameter	Description
CopySourceIfMatch	If the ETag of the source object is the same as that of the destination object, the object is copied. Otherwise, an error is returned.

Parameter	Description
CopySourceIfNoneMatch	If the ETag of the source object is different from that of the destination object, the object is copied. Otherwise, an error is returned.
CopySourceIfModifiedSince	If the specified time is earlier than the actual modified time of the object, the object is copied. Otherwise, an error is returned.
CopySourceIfUnmodifiedSince	If the specified time is equal to or later than the actual modified time of the object, the object is copied. Otherwise, an error is returned.

You can set CopySourceIfMatch and CopySourceIfNoneMatch at the same time. You can set CopySourceIfModifiedSince and CopySourceIfUnmodifiedSince at the same time.

The following code provides an example on how to perform conditional copy:

```
package main
import (
    "fmt"
    "os"
    "time"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    // bucketName := "<yourBucketName>"
    // objectName := "<yourObjectName>"
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    destMatchObjectName := "<yourMatchDestObjectName>"
    destUnMatchObjectName := "<yourUnmatchDestObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        fmt.Println("Error:", err)
        os.Exit(-1)
    }
    date := time.Date(2011, time.November, 10, 23, 0, 0, 0, time.UTC)
    // Copy the objects that meet the specified condition.
    _, err = bucket.CopyObject(objectName, destMatchObjectName, oss.CopySourceIfModifiedSin
ce(date))
    if err ! = nil {
        fmt.Println("CopyObject CopySourceIfModifiedSince Error:", err)
    }
    // Do not copy the objects that cannot meet the specified condition.
    _, err = bucket.CopyObject(objectName, destUnMatchObjectName, oss.CopySourceIfUnmodifie
dSince(date))
    if err ! = nil {
        fmt.Println("CopyObject CopySourceIfUnmodifiedSince Error:", err)
    }
}
```

6.1.2.5.9. Authorized access

This topic describes how to use STS and a signed URL to authorize access.

Use STS to authorize temporary access

Alibaba Cloud Security Token Service (STS) is a web service that provides a temporary access token to a cloud computing user. You can use STS to grant a third-party application or your RAM user an access credential with a customized validity period and permissions.

STS provides the following benefits:

- You need only to generate an access token and send the access token to a third-party application, instead of exposing your AccessKey pair to the third-party application. You can define the access permissions and validity period of this token.
- The token automatically expires after the validity period. Therefore, you do not need to manually revoke the access permissions of a token.

The following code provides an example on how to create a signature request by using STS:

```
import "github.com/aliyun/aliyun-oss-go-sdk/oss"
// After you obtain a temporary STS credential for your OSSClient, an OSSClient instance is
created based on the security token and temporary AccessKey pair (AccessKey ID and AccessKe
y secret) that are contained in the credential.
// Create an OSSClient instance.
client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>", oss.
SecurityToken("<yourSecurityToken>"))
if err ! = nil {
    fmt.Println("Error:", err)
    os.Exit(-1)
// Perform an operation in OSS.
}
```

Use a signed URL to authorize temporary access

You can generate a signed URL and provide the URL to a visitor for temporary access. When you generate a signed URL, you can specify the validity period of the URL to limit the period of access from visitors. By default, the validity period of a signed URL is 3,600 seconds. The maximum validity period of a signed URL is 32,400 seconds.

For the complete code of using a signed URL to authorize temporary access, visit GitHub.

- Use a signed URL to upload an object

```
package main
import (
    "fmt"
    "os"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>"
)
    if err ! = nil {
        HandleError(err)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    localFilename := "<yourLocalFilename>"
    // Specify the name of the bucket to which to upload the object.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        HandleError(err)
    }
    // Upload the object by using the signed URL.
    signedURL, err := bucket.SignURL(objectName, oss.HTTPPut, 60)
    if err ! = nil {
        HandleError(err)
    }
    var val = "Go with Alibaba Cloud"
    err = bucket.PutObjectWithURL(signedURL, strings.NewReader(val))
    if err ! = nil {
        HandleError(err)
    }
    // Upload the object by using the signed URL with optional parameters configured.
    options := []oss.Option{
        oss.Meta("myprop", "mypropval"),
        oss.ContentType("image/tiff"),
    }
    signedURL, err = bucket.SignURL(objectName, oss.HTTPPut, 60, options...)
    if err ! = nil {
        HandleError(err)
    }
    err = bucket.PutObjectFromFileWithURL(signedURL, localFilename, options...)
    if err ! = nil {
        HandleError(err)
    }
}
```

Note For more information, see Manage object metadata.

- Use a signed URL to download an object

```
package main
import (
    "fmt"
    "os"
    "io/ioutil"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>"
)
    if err ! = nil {
        HandleError(err)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    localDownloadedFilename := "<yourDownloadedFilename>"
    // Specify the name of the bucket from which to download the object.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        HandleError(err)
    }
    // Download the object to a stream by using the signed URL.
    signedURL, err := bucket.SignURL(objectName, oss.HTTPGet, 60)
    if err ! = nil {
        HandleError(err)
    }
    body, err := bucket.GetObjectWithURL(signedURL)
    if err ! = nil {
        HandleError(err)
    }
    // Read the object content.
    data, err := ioutil.ReadAll(body)
    body.Close()
    data = data // use data
    // Download the object to a local file by using the signed URL.
    err = bucket.GetObjectToFileWithURL(signedURL, localDownloadedFilename)
    if err ! = nil {
        HandleError(err)
    }
}
```

6.1.2.5.10. IMG

OSS Image Processing (IMG) is a secure, cost-effective, and highly reliable image processing service that can process large amounts of data. After you upload source images to OSS, you can call RESTful API operations to process the images anytime, anywhere, and on any Internet device.

Basic features

OSS IMG provides the following features:

- Query image information.
- Convert image formats.
- Resize, crop, and rotate images.
- Apply image effect.
- Add image, text, and text-and-image watermarks to images.
- Customize image processing styles. Log on to the OSS console. Click a bucket name to go to the bucket details page. Click the **Image Processing (IMG)** tab and click **Create Rule** to customize an image processing style.
- Use cascade processing to call multiple IMG features.

Usage

You can use standard `HTTP GET` requests to access IMG. All processing parameters are encoded in the query string of a URL.

- Anonymous access

  You can anonymously access a processed image by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction>,<yourParamValue>
  ```

Parameter	Description
bucket	The name of the bucket.
endpoint	The domain name used to access the region.
object	The name of the image object.
image	The identifier reserved by IMG.
action	The operations performed on images, such as scaling, cropping, and rotating.
param	The parameters corresponding to the operations performed on the images.

  - Basic operations

    For example, you can scale an image to a width of 100 and adjust the height based on the ratio:

    ```
    http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
    ```

- Customize an image style

  You can anonymously access IMG by using a third-level domain in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=style/<yourStyleName>
  ```

  - style: the identifier reserved by IMG for the custom style.
  - yourStyleName: the name of the custom style. The name is specified by the Rule Name parameter when you create the custom style in the console.

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=style/oss-pic-style-w-100
  ```

- Cascade processing

  You can use cascade processing to perform multiple operations in sequence on an image by using a URL in the following format:

  ```
  http://<yourBucketName>.<yourEndpoint>/<yourObjectName>?x-oss-process=image/<yourAction1>,<yourParamValue1>/<yourAction2>,<yourParamValue2>/...
  ```

  Example:

  ```
  http://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100/rotate,90
  ```

- Access by using HTTPS

  IMG supports access by using HTTPS. Example:

  ```
  https://image-demo.oss-cn-hangzhou.aliyuncs.com/example.jpg?x-oss-process=image/resize,w_100
  ```

- Authorized access

  If the ACL of an image object is private, you must have permissions on the image object before you can perform operations on the image object.

Bucket ACL	Object ACL
private	default
Any ACL	private

  The following code provides an example on how to generate a signed URL to access IMG:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>"
)
    if err ! = nil {
    HandleError(err)
    }
    // Obtain the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
    HandleError(err)
    }
    ossImageName := "<yourImageName>"
    signedURL, err := bucket.SignURL(ossImageName, oss.HTTPGet, 600, oss.Process("image/f
ormat,png"))
    if err ! = nil {
    HandleError(err)
    } else {
    fmt.Println(signedURL)
    }
}
```

- Access by using SDKs

  You can use OSS SDKs to access and process image objects of any ACLs.

  - Basic operations

    The following code provides an example on how to perform basic IMG operations including obtaining image information, converting image formats, resizing, cropping, rotating, watermarking, and applying effects:

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret
```

```
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret
>")
    if err ! = nil {
    HandleError(err)
    }
    // Obtain the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
    HandleError(err)
    }
    // Resize the image.
    sourceImageName := "example.png"
    targetImageName := "example-resize.png"
    style := "image/resize,m_fixed,w_100,h_100"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
    // Crop the image.
    targetImageName = "example-crop.png"
    style = "image/crop,w_100,h_100,x_100,y_100,r_1"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
    // Rotate the image.
    targetImageName = "example-rotate.png"
    style = "image/rotate,90"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
    // Sharpen the image.
    targetImageName = "example-sharpen.png"
    style = "image/sharpen,100"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
    // Add watermarks to the image.
    targetImageName = "example-watermark.png"
    style = "image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
    // Convert the image format.
    targetImageName = "example-formatconvert.jpg"
    style = "image/format,jpg"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
}
```

- Custom image styles

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret
>")
    if err ! = nil {
    HandleError(err)
    }
    // Obtain the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
     HandleError(err)
    }
    // Customize the image style.
    sourceImageName := "example.png"
    targetImageName := "example-custom.png"
    style := "style/<yourCustomStyleName>"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
    HandleError(err)
    }
}
```

- Cascade processing

```
package main
import (
    "fmt"
    "os"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret
>")
    if err ! = nil {
    HandleError(err)
    }
    // Obtain the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
    HandleError(err)
     }
    // Customize the image style.
    sourceImageName := "example.png"
    targetImageName := "example-cascade.png"
    style := "image/resize,m_fixed,w_100,h_100/rotate,90"
    err = bucket.GetObjectToFile(sourceImageName, targetImageName, oss.Process(style))
    if err ! = nil {
     HandleError(err)
    }
}
```

Persistent storage of processed images

```
package main
import (
    "fmt"
    "os"
    "encoding/base64"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
    HandleError(err)
    }
```

```
    // Obtain the bucket.
    bucketName := "<yourBucketName>"
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
     HandleError(err)
    }
    // Scale the image and store the processed image. By default, the processed image is st
ored in the same bucket as the original image.
    sourceImageName := "example.png"
    targetImageName := "example-resize.png"
    style := "image/resize,m_fixed,w_100,h_100"
    process := fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([
]byte(targetImageName)))
    result, err := bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
    // Scale the image and store the processed image. The processed image is stored in the
different bucket from the original image.
    targetBucketName := "<yourTargetBucketName>"
    targetImageName = "example-crop-different-bucket.png"
    style = "image/resize,m_fixed,w_100,h_100"
    process = fmt.Sprintf("%s|sys/saveas,o_%v,b_%v", style, base64.URLEncoding.EncodeToStri
ng([]byte(targetImageName)), base64.URLEncoding.EncodeToString([]byte(targetBucketName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
    // Crop the image and store the processed image.
    targetImageName = "example-crop.png"
    style = "image/crop,w_100,h_100,x_100,y_100,r_1"
    process = fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([]
byte(targetImageName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
    // Rotate the image and store the processed image.
    targetImageName = "example-rotate.png"
    style = "image/rotate,90"
    process = fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([]
byte(targetImageName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
```

```
    // Sharpen the image and store the processed image.
    targetImageName = "example-sharpen.png"
    style = "image/sharpen,100"
    process = fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([]
byte(targetImageName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
       fmt.Println(result)
    }
    // Add watermarks to the image and store the processed image.
    targetImageName = "example-watermark.png"
    style = "image/watermark,text_SGVsbG8g5Zu-54mH5pyN5YqhIQ"
    process = fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([]
byte(targetImageName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
    // Convert the image format and store the processed image.
    targetImageName = "example-formatconvert.jpg"
    style = "image/format,jpg"
    process = fmt.Sprintf("%s|sys/saveas,o_%v", style, base64.URLEncoding.EncodeToString([]
byte(targetImageName)))
    result, err = bucket.ProcessObject(sourceImageName, process)
    if err ! = nil {
    HandleError(err)
    } else {
        fmt.Println(result)
    }
}
```

6.1.2.5.11. Error handling

This topic describes how to handle errors when you use OSS SDK for Go.

Client errors

If errors occur when you use OSS SDK for Go, a unified operation used to handle errors is returned. The following code defines the error operation:

```
type error interface {
    Error() string
}
```

Other specific errors are further defined based on this error operation. The following code provides an example of the operation used to handle an HTTP request error:

```
//net.Error
type Error interface {
    error
    Timeout() bool   // Is the error a timeout
    Temporary() bool // Is the error temporary
}
```

Server errors

If request errors occur when you use OSS SDK for Go, corresponding errors are returned. In case of HTTP request errors and I/O errors, errors defined in OSS SDK for Go are returned. If an error occurs when the OSS server processes a request, the following error is returned, which is an implementation of the error operation:

```
type ServiceError struct {
    Code       string    // The error code returned by OSS.
    Message    string    // The error details provided by OSS.
    RequestId  string    // The UUID used to identify the request.
    HostId     string    // The host ID used to identify the accessed OSS cluster.
    StatusCode int       // The HTTP status code.
}
```

If the HTTP status code returned by OSS is not as expected, the following error is returned, which is an implementation of the error operation:

```
type UnexpectedStatusCodeError struct {
    allowed []int    // The expected HTTP status code returned by OSS.
    got     int      // The actual HTTP status code returned by OSS.
}
```

Example

The following code provides an example on how to handle errors:

```
package main
import (
    "fmt"
    "os"
    "strings"
    "github.com/aliyun/aliyun-oss-go-sdk/oss"
)
// The function used to handle the error.
func HandleError(err error) {
    fmt.Println("Error:", err)
    os.Exit(-1)
}
func main() {
    // Create an OSSClient instance.
    client, err := oss.New("<yourEndpoint>", "<yourAccessKeyId>", "<yourAccessKeySecret>")
    if err ! = nil {
        HandleError(err)
    }
    bucketName := "<yourBucketName>"
    objectName := "<yourObjectName>"
    // Specify the name of the bucket.
    bucket, err := client.Bucket(bucketName)
    if err ! = nil {
        HandleError(err)
    }
    // Use simple upload to upload strings.
    err = bucket.PutObject(objectName, strings.NewReader("yourObjectValueContentString"))
    if err ! = nil {
        HandleError(err)
}
```

OSS error codes

The following table describes the OSS error codes.

Error code	Error message	HTTP status code
AccessDenied	The error message returned because access is denied.	403
BucketAlreadyExists	The error message returned because the bucket already exists.	409
BucketNotEmpty	The error message returned because the bucket is not empty.	409
EntityTooLarge	The error message returned because the entity exceeds the maximum allowed size.	400

Error code	Error message	HTTP status code
EntityTooSmall	The error message returned because the entity is smaller than the minimum allowed size.	400
FileGroupTooLarge	The error message returned because the object group exceeds the maximum allowed size.	400
InvalidLinkName	The error message returned because the symbolic link points to an object that has the same name as the symbolic link.	400
LinkPartNotExist	The error message returned because the symbolic link points to an object that does not exist.	400
ObjectLinkTooLarge	The error message returned because the number of objects the symbolic link points to exceeds the limit.	400
FieldItemTooLong	The error message returned because the total length of the form fields in the POST request exceeds the limit.	400
FilePartInterity	The error message returned because the part is modified.	400
FilePartNotExist	The error message returned because the specified part does not exist.	400
FilePartStale	The error message returned because the part expires.	400
IncorrectNumberOfFilesInPOSTRequest	The error message returned because the number of objects in the POST request is invalid.	400
InvalidArgument	The error message returned because the parameter format is invalid.	400
InvalidAccessKeyId	The error message returned because the specified Accesskey ID does not exist.	403
InvalidBucketName	The error message returned because the bucket name is invalid.	400

Error code	Error message	HTTP status code
InvalidDigest	The error message returned because the digest is invalid.	400
InvalidEncryptionAlgorithmError	The error message returned because the specified encryption algorithm based on entropy encoding is invalid.	400
InvalidObjectName	The error message returned because the object name is invalid.	400
InvalidPart	The error message returned because the part is invalid.	400
InvalidPartOrder	The error message returned because the part sequence is invalid.	400
InvalidPolicyDocument	The error message returned because the policy document is invalid.	400
InvalidTargetBucketForLogging	The error message returned because the destination bucket specified for logging is invalid.	400
InternalError	The error message returned when an internal OSS error occurs.	500
MalformedXML	The error message returned because the XML format is invalid.	400
MalformedPOSTRequest	The error message returned because the format of the POST request body is invalid.	400
MaxPOSTPreDataLengthExceededError	The error message returned because the size of the POST request body, excluding the object content to upload, exceeds the limit.	400
MethodNotAllowed	The error message returned because the method is not supported.	405
MissingArgument	The error message returned because the required parameters are not set.	411

Error code	Error message	HTTP status code
MissingContentLength	The error message returned because the content length is not specified.	411
NoSuchBucket	The error message returned because the specified bucket does not exist.	404
NoSuchKey	The error message returned because the specified object does not exist.	404
NoSuchUpload	The error message returned because the specified multipart upload ID does not exist.	404
NotImplemented	The error message returned because the method cannot be implemented.	501
PreconditionFailed	The error message returned because a precondition error occurs.	412
RequestTimeTooSkewed	The error message returned because the difference between the time on the client when the request is sent and the time on the server when the request is received is greater than 15 minutes.	403
RequestTimeout	The error message returned because the request times out.	400
RequestIsNotMultiPartContent	The error message returned because the content-type value specified in the POST request is invalid.	400
SignatureDoesNotMatch	The error message returned because the signature is invalid.	403
TooManyBuckets	The error message returned because the number of the buckets managed by a user exceeds the limit.	400
InvalidEncryptionAlgorithmError	The error message returned because the specified encryption algorithm based on entropy encoding is invalid.	400

> **Note** In the preceding table, the error code is specified by the OssServiceError.Code parameter. The HTTP status code is specified by the OssServiceError.StatusCode parameter.

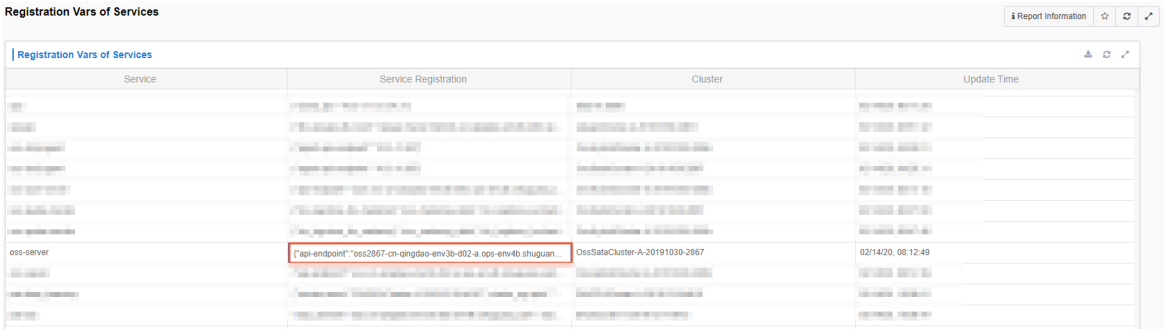
6.1.3. Obtain an endpoint

You can obtain an endpoint of a service in the Apsara Uni-manager Operations Console.

Procedure

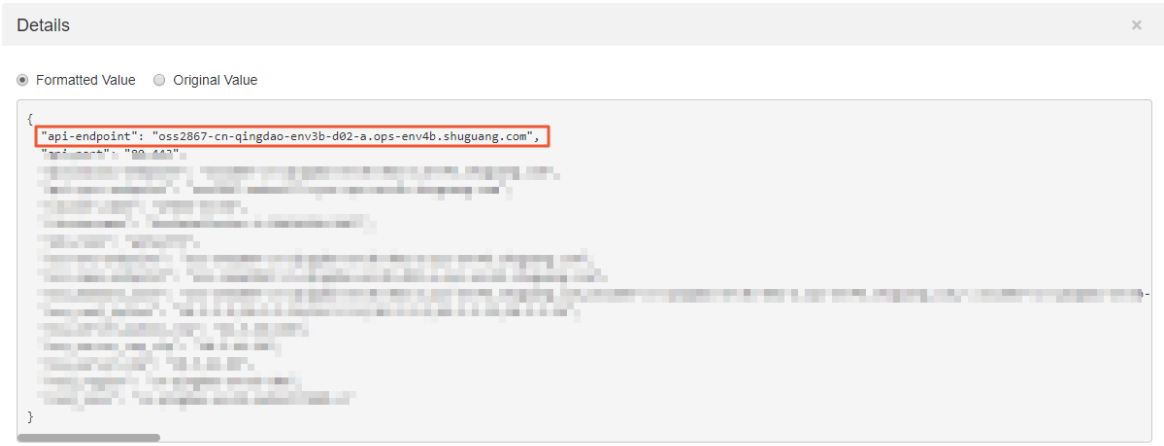
1. Log on to the Apsara Uni-manager Operations console.

   For more information about how to log on to the Apsara Uni-manager Operations console, see *Log on to the Apsara Uni-manager Operations console* in *Operations and Maintenance Guide*.
2. In the left-side navigation pane, choose **Products > Product List** to go to the Product List page. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
3. Click **Reports**.
4. In the list, click **Registration Vars of Services**.
5. In the top navigation bar, choose **Reports > System Reports**.
6. On the **Registration Vars of Services** page, find the **oss-server** row. Right-click the **Service Registration** column and choose **Show More** from the shortcut menu.



7. Click **Formatted Value**.

   The value of **api-endpoint** is the OSS endpoint.



6.1.4. Obtain an AccessKey pair

An AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs are used to implement symmetric encryption to verify the identity of requesters. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt a signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

Only operations administrators or level-1 organization administrators can obtain the AccessKey pair of an organization.

Obtain the AccessKey pair of an organization

To obtain the AccessKey pair of an organization, perform the following operations:

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 8 to 20 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Login**.
4. In the top navigation bar, click **Enterprise**.
5. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
6. In the organization navigation tree, click an organization name.
7. In the Current Organization section, click **Obtain an accesskey**.
8. In the AccessKey message, view the AccessKey pair of the organization.

   > **Note** An AccessKey pair is automatically allocated to each level-1 organization. Subordinate organizations use the same AccessKey pair of their level-1 organization.

Obtain the AccessKey pair of a personal account

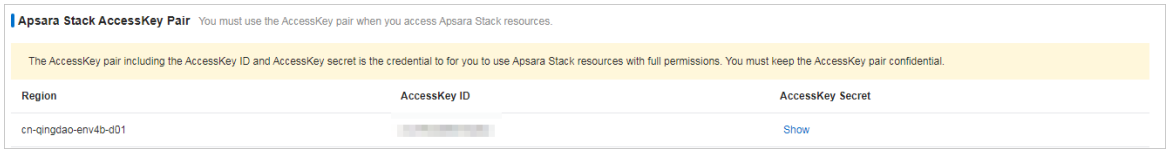
To obtain the AccessKey pair of a personal account, perform the following steps:

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 8 to 20 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Login**.
4. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
5. In the **Apsara Stack AccessKey Pair** section, view your AccessKey pair.



> **Note** The AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs of accounts grant you full permissions to access Apsara Stack resources. You must keep your AccessKey pair confidential.

7.Tablestore

7.1. Developer Guide

7.1.1. API reference

7.1.1.1. API

7.1.1.1.1. API-based operations

7.1.1.1.1.1. GetRow

Action

You can use the GetRow API to read data in a single row based on a specified primary key.

Request structure

```
message GetRowRequest {
    required string table_name = 1;
    required bytes primary_key = 2;   // The PlainBuffer encoding is binary.
    repeated string columns_to_get = 3; // If this parameter is not specified, all columns
are read.
    optional TimeRange time_range = 4;
    optional int32 max_versions = 5;
    optional bytes filter = 7;
    optional string start_column = 8;
    optional string end_column = 9;
    optional bytes token = 10;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table containing the data to be read.

primary_key:

- Type: bytes
- Required: yes
- This parameter specifies all primary key columns in the row, including the primary key names and values. The primary key columns are encoded in the PlainBuffer format.

columns_to_get:

- Type: repeated string
- Required: no

- This parameter specifies the names of all columns to be returned. If the parameter is not configured, all columns of this row are returned.
- If the specified column does not exist, data in this column is not returned.
- If a duplicate column name exists, the response only includes this column once.
- In columns_to_get, the maximum number of strings is 128.

time_range:

- Type: TimeRange
- Required: At least one of the time_range and max_versions parameters must be specified.
- This parameter specifies the range of timestamps to read versions of data.
- The minimum timestamp value is 0. The maximum timestamp value is INT64.MAX.
- To query data within a time range, specify start_time and end_time.
- To query data within a specific timestamp, specify specific_time.
- Example: If the value of time_range is (100, 200), the timestamp of the returned column data must be within the range of [100, 200).

max_versions:

- Type: int32
- Required: At least one of the max_versions and time_range parameters must be specified.
- This parameter specifies the maximum number of versions of data to be returned.
- Example: If the value of max_versions is 2, data of a maximum of two versions is returned for each column.

filter:

- Type: bytes
- Required: no
- This parameter specifies the expression of the filtering condition.
- It indicates the binary data after the filter is serialized in the Protobuf format.

start_column:

- Type: string
- Required: no
- This parameter specifies the column to start to read from and is used to read wide rows.
- The response contains the specified starting column.
- The column names are sorted lexicographically.
- Example: If a table contains columns A, B, and C, and the value of start_column is B, the data is read starting from column B. Columns B and C are returned.

end_column:

- Type: string
- Required: no
- This parameter specifies the column to stop reading data and is used to read wide rows.

- The response does not contain the specified ending column.
- The column names are sorted lexicographically.
- Example: If a table contains columns A, B, and C, and the value of end_column is B, the reading stops at column B. Only column A is returned.

Response structure

```
message GetRowResponse {
    required ConsumedCapacity consumed = 1;
    required bytes row = 2; // The PlainBuffer encoding is binary.
}
```

consumed:

- Type: CapacityUnit
- This parameter specifies the number of CUs consumed by this operation.

row:

- Type: bytes
- The read data is encoded in the PlainBuffer format.
- If this row does not exist, null is returned.

CU consumption:

- If the requested row does not exist, one read CU is consumed.
- If the requested row exists, the number of consumed read CUs is calculated based on the following formula: Number of consumed read CUs = [(Size of all primary key columns in the row + Size of actually read attribute columns)/4 KB] rounded up.
- If the request times out and the results are undefined, a CU may or may not be consumed.
- If an internal error code is returned (HTTP status code: 5XX), this operation does not consume CUs. If other errors are returned, one read CU is consumed.

7.1.1.1.1.2. PutRow

Action

You can use the PutRow API to insert data into the specified row. If the row does not exist, a new row is added. If the row exists, the original row is overwritten.

Request structure

```
message PutRowRequest {
    required string table_name = 1;
    required bytes row = 2; // The PlainBuffer encoding is binary.
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table to write data to.

row:

- Type: bytes
- Required: yes
- This parameter specifies the data to be written into the row. It is in the PlainBuffer format and contains the primary key and attribute columns.

condition:

- Type: Condition
- Required: yes
- This parameter determines whether to perform the row existence check before writing data. It can be one of three values:
  - IGNORE indicates that the row existence check is not performed.
  - EXPECT_EXIST indicates that the row is expected to exist.
  - EXPECT_NOT_EXIST indicates that the row is not expected to exist.
- If the row is not expected to exist but it does, the row cannot be inserted and an error is returned. If the row is expected to exist but it does not, the row also fails to be inserted and an error is returned.

return_content:

- Type: ReturnContent
- Required: no
- This parameter specifies the data type after the row is written. Only the primary key is returned. It is used for the auto-increment function of the primary key column.

Response structure

```
message PutRowResponse {
 required ConsumedCapacity consumed = 1;
 optional bytes row = 2;
}
```

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of CUs consumed by this operation.

CU consumption:

- If this row does not exist:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of primary key columns in the row + Size of attribute columns to be inserted)/4 KB] rounded up.

- If the value of the condition parameter is EXPECT_NOT_EXIST, both write and read CUs are consumed. The number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of primary key columns in the row + Size of attribute columns to be inserted)/4 KB] rounded up. The number of consumed read CUs is calculated based on the following formula: Number of consumed read CUs = (Size of primary key columns in the row/4 KB) rounded up.
- If the value of the condition parameter is EXPECT_EXIST, the row fails to be inserted. One write CU and one read CU are consumed.

- If this row exists:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of all primary key columns in the row + Size of attribute columns to be inserted)/4 KB] rounded up.
  - If the value of the condition parameter is EXPECT_EXIST, both write and read CUs are consumed. The number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of all primary key columns in the row + Size of attribute columns to be inserted)/4 KB] rounded up. The number of consumed read CUs is calculated based on the following formula: Number of consumed read CUs = (Size of all primary key columns in the row/4 KB) rounded up.
  - If the value of the condition parameter is EXPECT_NOT_EXIST, the row fails to be inserted. One write CU and one read CU are consumed.
- Conditional Update:
  - If the operation succeeds, the number of consumed CUs are calculated based on the preceding formulas.
  - If the operation fails, one write CU and one read CU are consumed.
- If an internal error code is returned (HTTP status code: 5XX), this operation does not consume CUs. If other errors are returned, one write CU is consumed.
- If the request times out and the results are undefined, a CU may or may not be consumed.

row:

- Type: bytes
- This parameter specifies the returned data when return_content is set.
- If return_content is not set or no value is returned, NULL is returned.
- It is in the PlainBuffer format.

7.1.1.1.1.3. UpdateRow

Description

You can call this operation to update the data of a specified row. If the specified row does not exist, a new row is added. If the specified row exists, the values in the specified columns are added, modified, or deleted based on the request.

Request structure

```
message UpdateRowRequest {
 required string table_name = 1;
 required bytes row_change = 2;
 required Condition condition = 3;
 optional ReturnContent return_content = 4;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table whose data is to be updated.

row_change:

- Type: bytes
- Required: yes
- This parameter specifies the data that you use to update the row, including primary key columns and attribute columns. The data is in the PlainBuffer format.
- This parameter specifies all the attribute columns whose data you want to update for this row. Tablestore adds, modifies, or deletes the values in the specified attribute columns based on each specified update type in row_change.
- Columns that exist in this row but are not specified by row_change are not affected.
- Valid values of UpdateType:
  - PUT: The value you use to update the specified column must be a valid attribute column value. This update type indicates that if the specified column does not exist, a new column is added. If the specified column exists, the existing column is overwritten.
  - DELETE: The value you use to update the specified column must be empty, and a timestamp must be specified. This update type indicates that data of the specified version is deleted from the column.
  - DELETE_ALL: The value you use to update the specified column and the timestamp must be empty. This update type indicates that all versions of data in the column are deleted.

> **Note** A row exists even if all attribute columns in the row are deleted. To delete a row, use the DeleteRow operation.

condition:

- Type: Condition
- Required: yes
- This parameter determines whether to perform existence check before data is updated. You can set this parameter to one of the following values:
  - IGNORE: the row existence check is not performed.
  - EXPECT_EXIST: the row is expected to exist.
- If a row that is expected to exist does not exist, the row cannot be updated and an error is returned. If the existence of the row is ignored, the operation result is not affected by the row existence.

return_content:

- Type: ReturnContent

- Required: no
- This parameter specifies the type of the data to return after the row is updated. Only the primary key is returned. It is used for the auto-increment function of the primary key column.

Response structure

```
message UpdateRowResponse {
 required ConsumedCapacity consumed = 1;
 optional bytes row = 2;
}
```

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of capacity units (CUs) consumed by this operation.

CU consumption:

- If the row does not exist:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of primary key columns in the row + Size of attribute columns to be updated)/4 KB] rounded up. If UpdateRow specifies an attribute column to delete, the length of the column name is calculated as the column size.
  - If the value of the condition parameter is EXPECT_EXIST, the row fails to be inserted. One write CU and one read CU are consumed.
- If the row exists:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = [(Size of primary key columns in the row + Size of attribute columns to be updated)/4 KB] rounded up. If UpdateRow specifies an attribute column to delete, the length of the column name is calculated as the column size.
  - If the value of the condition parameter is EXPECT_EXIST, both write and read CUs are consumed. The number of consumed write CUs is calculated by using the same method that is used when the value of the condition parameter is IGNORE. The number of consumed read CUs is calculated based on the following formula: Number of consumed read CUs = (Size of primary key columns in the row/4 KB) rounded up.
- If the request times out and the results are undefined, CUs may or may not be consumed.
- If an internal error is returned and the 5xx HTTP status code is displayed, this operation does not consume CUs. If other errors are returned, one write CU and one read CU are consumed.

row:

- Type: bytes
- This parameter indicates the returned data when return_content is set.
- If return_content is not set or no value is returned, NULL is returned.
- The returned data is in the PlainBuffer format.

7.1.1.1.1.4. DeleteRow

Action

You can use the DeleteRow API to delete a row of data.

Request structure

```
message DeleteRowRequest {
    required string table_name = 1;
    required bytes primary_key = 2; // The PlainBuffer encoding is binary.
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table whose data is to be updated.

primary_key:

- Type: bytes
- Required: yes
- This parameter specifies the primary key of the row to be deleted, which is in the PlainBuffer format.

condition:

- Type: Condition
- Required: yes
- This parameter determines whether to perform existence check before data updates. It can be one of two values:
  - IGNORE indicates that the row existence check is not performed.
  - EXPECT_EXIST indicates that the row is expected to exist.
- If this row is expected to exist but does not, the delete operation fails and an error is returned. If the existence of the row is ignored, this operation succeeds regardless of the row existence.

return_content:

- Type: ReturnContent
- Required: no
- This parameter specifies the data type after the row is written. Only the primary key is returned. It is used for the auto-increment function of the primary key column.

Response structure

```
message DeleteRowResponse {
 required ConsumedCapacity consumed = 1;
 optional bytes row = 2;
}
```

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of capacity units (CUs) consumed by this operation.

CU consumption:

- If this row does not exist:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = (Size of primary key columns in the row/4 KB) rounded up.
  - If the value of the condition parameter is EXPECT_EXIST, the row fails to be deleted, and one write CU and one read CU are consumed.
- If this row exists:
  - If the value of the condition parameter is IGNORE, the number of consumed write CUs is calculated based on the following formula: Number of consumed write CUs = (Size of primary key columns in the row/4 KB) rounded up.
  - If the value of the condition parameter is EXPECT_EXIST, both write and read CUs are consumed. The number of consumed write CUs and the number of consumed read CUs are calculated based on the following formula: Number of consumed read/write CUs = (Size of primary key columns in the row/4 KB) rounded up.
- If an internal error code is returned (HTTP status code: 5XX), this operation does not consume CUs. If other errors are returned, one write CU is consumed.
- If the request times out and the results are undefined, a CU may or may not be consumed.

row:

- Type: bytes
- This parameter specifies the returned data when return_content is set.
- If return_content is not set or no value is returned, NULL is returned.
- The returned data is in the PlainBuffer format.

7.1.1.1.1.5. GetRange

Description

You can call this operation to read data within the specified primary key range.

Request structure

```
message GetRangeRequest {
    required string table_name = 1;
    required Direction direction = 2;
    repeated string columns_to_get = 3;  // If this parameter is not specified, all columns are read.
    optional TimeRange time_range = 4;
    optional int32 max_versions = 5;
    optional int32 limit = 6;
    required bytes inclusive_start_primary_key = 7; // Encode the parameter value in the PlainBuffer format to obtain binary data.
    required bytes exclusive_end_primary_key = 8; // Encode the parameter value in the PlainBuffer format to obtain binary data.
    optional bytes filter = 10;
    optional string start_column = 11;
    optional string end_column = 12;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table that contains the data to read.

direction:

- Type: Direction
- Required: yes
- This parameter specifies the query direction. If the query direction is forward, the value of inclusive_start_primary must be smaller than that of exclusive_end_primary, and the rows in the response are sorted in ascending order of primary key values. If the query direction is backward, the value of inclusive_start_primary must be greater than that of exclusive_end_primary, and the rows in the response are sorted in descending order of primary key values.

columns_to_get:

- Type: repeated string
- Required: no
- This parameter specifies the names of all columns to return. If the parameter is not configured, all columns of each row in the read results are returned.
- If a duplicate column name exists, the response only includes this column once.
- The maximum number of strings that can be specified in columns_to_get is 128.

time_range:

- Type: TimeRange
- Required: At least one of the time_range and max_versions parameters must be specified.
- This parameter specifies the range of timestamps to read versions of data.
- The timestamp in the value of time_range ranges from 0 to INT64.MAX.
- To query data of a time range, specify start_time and end_time.
- To query data of a specific timestamp, specify specific_time.
- Example: If the value of time_range is (100, 200), the timestamp of the returned column data must be within the range of [100, 200).

max_versions:

- Type: int32
- Required: At least one of the time_range and max_versions parameters must be specified.
- This parameter specifies the maximum number of versions of data to return.
- Example: If the value of max_versions is 2, a maximum of two versions of data is returned for each column.

limit:

- Type: int32
- Required: no
- This parameter specifies the maximum number of rows to read and return in a single operation. If the number of rows queried exceeds this value, the response includes a breakpoint to record the position where read ends in this operation. The next read continues from the recorded position. This value must be greater than 0.
- Tablestore returns a maximum of 5,000 rows of data if this parameter is not set. The total data size does not exceed 4 MB.

inclusive_start_primary_key:

- Type: bytes
- Required: yes
- This parameter specifies a start primary key. The read starts from the row that contains the start primary key. If the row exists, the response contains this row. The start primary key is encoded in the PlainBuffer format.

exclusive_end_primary_key:

- Type: bytes
- Required: yes
- This parameter specifies an end primary key. The read stops at the row that contains the end primary key. The response does not contain the row regardless of the row existence. The end primary key is encoded in the PlainBuffer format.
- For GetRange, the type of Column in inclusive_start_primary_key or exclusive_end_primary_key can be set to INF_MIN or INF_MAX. If the type of column is set to INF_MIN, the value of the column is always smaller than that of other columns. If the type of column is set to INF_MAX, the value of the column is always greater than that of other columns. Columns.

filter:

- Type: bytes
- Required: no
- This parameter specifies the expression of the filter condition.
- It indicates the binary data after the filter is serialized in the Protobuf format.

start_column:

- Type: string
- Required: no
- This parameter specifies the column from which the read of each row starts. This parameter is used to read wide rows.
- The response contains the specified start column.

- The columns are sorted based on their names in alphabetical order.
- Example: If a table contains columns a, b, and c, and the value of start_column is b, the read of data starts from column b. Columns b and c are returned.

end_column:

- Type: string
- Required: no
- This parameter specifies the column where the read of each row ends. This parameter is used to read wide rows.
- The response does not contain the specified end column.
- The columns are sorted based on their names in alphabetical order.
- Example: If a table contains columns a, b, and c, and the value of end_column is b, the read of data stops at column b. Only column a is returned.

Response structure

```
message GetRangeResponse {
    required ConsumedCapacity consumed = 1;
    required bytes rows = 2;
    optional bytes next_start_primary_key = 3;
}
```

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of capacity units (CUs) consumed by this operation.

rows:

- Type: bytes
- It is encoded in the PlainBuffer format.
- This parameter indicates all the read data. If the direction specified in the request is forward, all rows are sorted in ascending order of primary key values. If the direction specified in the request is backward, all rows are sorted in descending order of primary key values.
- primary_key_columns and attribute_columns for each row only contain the columns specified by columns_to_get. Their orders may not be consistent with the order of columns_to_get in the request. The order of primary_key_columns may not be consistent with the order specified when the table is created.
- If the specified columns_to_get in the request does not contain any primary key column, rows that do not contain any attribute column specified in columns_to_get are not included in the response although the primary key column of the rows is within the query range.

next_start_primary_key:

- Type: bytes
- This parameter specifies the breakpoint information for this GetRange operation. It is encoded in the PlainBuffer format.
- If this parameter is not specified, the response to this GetRange operation contains all data within the request range.
- If this parameter is specified, the response to this GetRange operation includes only the data within the [inclusive_start_primary_key, next_start_primary_key) range. If you want to obtain the remaining

data, you must use next_start_primary_key as inclusive_start_primary_key, and retain exclusive_end_primary_key in the original request to continue the GetRange operation.

> **Note** Tablestore limits the number of rows in the response to a GetRange operation to 5,000 rows, whose size cannot exceed 4 MB. Furthermore, the volume of returned data cannot exceed the remaining reserved read throughput. Even if no limit is set in the GetRange request, next_start_primary_key may still appear in the response. Therefore, when you use GetRange, you must check whether the response contains next_start_primary_key and proceed accordingly.

CU consumption:

- The number of read CUs consumed by the GetRange operation is calculated based on the following formula: Number of read CUs consumed by the GetRange operation = [(Size of primary key columns of the row within the query range + Size of actually read attribute columns)/4 KB] rounded up.
- If the request times out and the results are undefined, CUs may or may not be consumed.
- If an internal error is returned (HTTP status code: 5xx), this operation does not consume CUs. If other errors are returned, one read CU is consumed.

7.1.1.1.1.6. BatchGetRow

Action

You can use the BatchGetRow API to simultaneously read data in several rows from one or more tables.

The BatchGetRow operation is a set of multiple GetRow operations. The execution, returning of results, and CU consumption of each individual operation are carried out independently.

Compared with the execution of a large number of GetRow operations, the use of BatchGetRow can reduce the request response time and increase the data read rate.

Request structure

```
message BatchGetRowRequest {
    repeated TableInBatchGetRowRequest tables = 1;
}
```

tables:

- Type: repeated TableInBatchGetRowRequest
- Required: yes
- This parameter specifies the information of rows to be read.
- The entire operation fails and returns an error if any of the following conditions appears in tables:
  - Any table listed in the tables parameter does not exist.
  - The name of any table does not comply with the table naming conventions.
  - The primary key is not specified for any row in a table, the primary key column name does not comply with the conventions, or the primary key column type is incorrect.
  - A column name in columns_to_get of any table does not comply with the column naming conventions.
  - Tables with the same name exist.
  - Any table in the tables contains rows with identical primary keys.

- The total number of RowInBatchGetRowRequest in all tables exceeds 100.
- Any table in the tables does not contain any RowInBatchGetRowRequest.
- The value of columns_to_get of any table exceeds 128.

Response structure

```
message BatchGetRowResponse {
    repeated TableInBatchGetRowResponse tables = 1;
}
```

tables:

- Type: repeated TableInBatchGetRowResponse
- The value of this parameter corresponds to the data to be read in each table.
- The TableInBatchGetRowResponse object order in the response is the same as the TableInBatchGetRowRequest object order in BatchGetRowRequest. The object order of each RowInBatchGetRowResponse under TableInBatchGetRowResponse is the same as that of RowInBatchGetRowRequest under TableInBatchGetRowRequest.
- If a row does not exist or contains no data in the specified columns_to_get, a corresponding RowInBatchGetRowResponse still appears in TableInBatchGetRowResponse. However, the primary_key_columns and attribute_columns of the row are null.
- If a row fails to be read, the is_ok value in RowInBatchGetRowResponse for the row is false and the row is null.

> **Note** The BatchGetRow operation may partially fail at the row level. However, it still returns an HTTP status code of 200. The application must check for errors in RowInBatchGetRowResponse to confirm the execution results for each row and then proceed accordingly.

CU consumption:

- If the entire operation fails, it does not consume any CU.
- If the request times out and the results are undefined, a CU may or may not be consumed.
- In other situations, each RowInBatchGetRowRequest operation is considered as one GetRow operation when write CUs are calculated.

7.1.1.1.1.7. BatchWriteRow

Action

You can use the BatchWriteRow API to simultaneously insert, modify, or delete data in several rows in one or more tables.

It is a set of multiple PutRow, UpdateRow, and DeleteRow operations. The execution, returning of results, and capacity unit (CU) consumption of each individual operation are carried out independently.

Compared with the execution of a large number of write operations, the use of BatchWriteRow can reduce the request response time and increase the data write rate.

Request structure

```
message BatchWriteRowRequest {
    repeated TableInBatchWriteRowRequest tables = 1;
}
```

tables:

- Type: repeated TableInBatchWriteRowRequest
- Required: yes
- This parameter specifies the information of rows that require write operations.
- An error is returned if any of the following conditions occurs:
  - Any table listed in the tables parameter does not exist.
  - Tables with the same name exist.
  - The name of any table does not comply with the table naming conventions.
  - The primary key is not specified for any row in a table, the primary key column name does not comply with the conventions, or the primary key column type is incorrect.
  - For any attribute column in a table, the column name does not comply with the column naming conventions.
  - Any row in a table contains an attribute column with the same name as the primary key column.
  - The value of any primary key or attribute column in a table exceeds the upper limit.
  - Any table in the tables contains rows with identical primary keys.
  - The total number of rows for all tables listed in the tables parameter exceeds 200 or the total size of the data exceeds 4 MB.
  - If any table contains no rows, the OTSParameterInvalidException error is returned.
  - The number of columns included in any PutRowInBatchWriteRowRequest of a table exceeds 1,024.
  - The number of ColumnUpdate objects included in any UpdateRowInBatchWriteRowRequest in a table exceeds 1,024.

Response structure

```
message BatchWriteRowResponse {
    repeated TableInBatchWriteRowResponse tables = 1;
}
```

tables:

- Type: TableInBatchWriteRowResponse
- This parameter specifies the response information corresponding to the operations for each table. The response information contains the execution results, error codes, and number of CUs consumed.
- The TableInBatchWriteRowResponse object order in the response is the same as the TableInBatchWriteRowRequest object order in BatchWriteRowRequest. The RowInBatchWriteRowResponse object orders contained in put_rows, update_rows, and delete_rows in each TableInBatchWriteRowRequest are the same as the respective PutRowInBatchWriteRowRequest, UpdateRowInBatchWriteRowRequest, and DeleteRowInBatchWriteRowRequestobject orders contained in put_rows, update_rows, and delete_rows in TableInBatchWriteRowRequest.
- If a row fails to be read, the is_ok value of the row in RowInBatchWriteRowResponse is false.

> **Note** The BatchWriteRow operation may partially fail at the row level. However, it still returns an HTTP status code of 200. The application must check for errors in RowInBatchWriteRowResponse to confirm the execution results for each row and then proceed accordingly.

CU consumption:

- If the entire operation fails, it does not consume any CUs.
- If the request times out and the results are undefined, a CU may or may not be consumed.
- In other situations, each PutRowInBatchWriteRowRequest, UpdateRowInBatchWriteRowRequestDelete, or RowInBatchWriteRowRequest operation is considered as one write operation when write CUs are calculated.

7.1.1.1.1.8. CreateTable

Action

You can use the CreateTable API to create a table based on the specified table structure information.

Request structure

```
message CreateTableRequest {
    required TableMeta table_meta = 1;
    required ReservedThroughput reserved_throughput = 2;
    optional TableOptions table_options = 3;
    optional StreamSpecification stream_spec = 5;
}
```

table_meta:

- Type: TableMeta
- Required: yes
- This parameter specifies the structural information of the table you want to create. The value of table_name must be unique among the current instance. The value of ColumnSchemas in primary_key must be between 1 and 4. The value of the name parameter in ColumnSchema of primary_key must comply with the naming conventions. The value of the type parameter can only be STRING, INTEGER, or BINARY.
- After a table is created, its schema cannot be modified.

reserved_throughput:

- Type: ReservedThroughput
- Required: yes
- This parameter specifies the initial reserved read/write throughput for the table to be created. The maximum reserved throughput is 5,000 for each table.
- The reserved read/write throughput settings for a table can be modified by using the UpdateTable operation.

table_options:

- Type: TableOptions
- Required: yes

- This parameter specifies TimeToLive and MaxVersions.

Response structure

```
message CreateTableResponse {
}
```

Note

- No read/write operation can be performed on a table immediately after it is created. Typically, you can perform read/write operations on a new table one minute after it is created.
- A single instance can contain up to 64 tables. If you need to raise the upper limit of the table quantity for a single instance, contact Alibaba Cloud customer service.

7.1.1.1.1.9. ListTable

Action

You can use the ListTable API to obtain the names of all tables created in the current instance.

Request structure

```
message ListTableRequest {
}
```

Response structure

```
message ListTableResponse {
    repeated string table_names = 1;
}
```

table_names:

- Type: repeated string
- This parameter specifies the names of all tables in the current instance.

Note

If a table is created, its table name can be returned by ListTableResponse, but this does not necessarily mean that this table can be read or written at the time.

7.1.1.1.1.10. DeleteTable

Action

You can use the DeleteTable API to delete the specified table in an instance.

Request structure

```
message DeleteTableRequest {
    required string table_name = 1;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table you want to delete.

Response structure

```
message DeleteTableResponse {
}
```

If the response of DeleteTable does not contain an error, the table has been deleted.

7.1.1.1.1.11. UpdateTable

Action

You can use the UpdateTable API to update the reserved read or write throughput settings of the specified table. New settings take effect within one minute of a successful update.

Request structure

```
message UpdateTableRequest {
    required string table_name = 1;
    optional ReservedThroughput reserved_throughput = 2;
    optional TableOptions table_options = 3;
    optional StreamSpecification stream_spec = 4;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table for which you want to modify the reserved read/write throughput settings.

reserved_throughput:

- Type: ReservedThroughput
- Required: yes
- This parameter specifies the reserved read/write throughput settings you want to modify for the table. New settings take effect within one minute of a successful update.
- You may modify the reserved read/write throughput settings of the table as required.
- You must specify a non-null value for either the read or write parameter of capacity_unit. Otherwise, the request fails and an error is returned.

table_options:

- Type: TableOptions
- Required: yes
- This parameter specifies TimeToLive and MaxVersions.

Response structure

```
message UpdateTableResponse {
    required ReservedThroughputDetails reserved_throughput_details = 1;
    required TableOptions table_options = 2;
}
```

reserved_throughput_details:

- Type: ReservedThroughputDetails
- After the update, the reserved read/write throughput settings information of the table contains the current reserved throughput settings, the time these settings were last updated, and the number of times they have been lowered on the current date.

table_options:

- Type: TableOptions
- The latest value of the table_options parameter after the modification.

Note

- The minimum interval between updates to the reserved read/write throughput of a table is two minutes. If the current UpdateTable operation is requested within two minutes of the previous operation, it will be rejected.
- The reserved read/write throughput of a table can be raised or lowered an unlimited number of times within a single day (from 00:00:00 to 00:00:00 the next day in UTC time).

7.1.1.1.1.12. DescribeTable

Action

You can use the DescribeTable API to query the structure information and reserved read/write throughput value of the specified table.

Request structure

```
message DescribeTableRequest {
 required string table_name = 1;
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table you want to query.

Response structure

```
message DescribeTableResponse {
    required TableMeta table_meta = 1;
    required ReservedThroughputDetails reserved_throughput_details = 2;
    required TableOptions table_options = 3;
    optional StreamDetails stream_details = 5;
    repeated bytes shard_splits = 6;
}
```

table_meta:

- Type: TableMeta
- This parameter specifies the schema of the table. The schema is the same as the schema provided when the table is created.

reserved_throughput_details:

- Type: ReservedThroughputDetails
- This parameter specifies the reserved read/write throughput settings information of the table. The information contains the current reserved read/write throughput settings, the time these settings were last updated, and the number of times they have been lowered on the current date.

table_options:

- Type: TableOptions
- This parameter specifies the latest value of the table_options parameter.

StreamSpecification:

- Type: StreamSpecification
- Required: no
- This parameter specifies whether to enable Stream-related attributes.

shard_splits:

- Type: bytes
- This parameter specifies the split points of all partitions in the current table.

7.1.1.1.1.13. ComputeSplitPointsBySize

Action

You can use the ComputeSplitPointsBySize API to logically split data in a table into several partitions whose sizes are close to the specified size. The API can return the split points between the partitions and prompt about hosts where the partitions reside. This API is typically used to implement plans on compute engines, such as concurrency plans.

Request structure

```
message ComputeSplitPointsBySizeRequest {
    required string table_name = 1;
    required int64 split_size = 2; // in 100MB
}
```

table_name:

- Type: string
- Required: yes
- This parameter specifies the name of the table that contains the data you want to split.

split_size:

- Type: int64
- Required: yes
- This parameter specifies the approximate size of each partition, rounded to the nearest 100 MB.

Response structure

```
message ComputeSplitPointsBySizeResponse {
    required ConsumedCapacity consumed = 1;
    repeated PrimaryKeySchema schema = 2;
    /**
     * Split points between splits, in the ascending order.
     *
     * A split is a consecutive range of primary keys,
     * whose data size is approximately split_size specified in the request.
     * The size could be hard to be precise.
     *
     * A split point is an array of primary-key column w.r.t. table schema,
     * which is never longer than that of table schema.
     * Tailing -inf will be omitted to reduce transmission payloads.
     */
    repeated bytes split_points = 3;
    /**
     * Locations where splits lie.
     *
     * By the managed nature of TableStore, these locations are no more than hints.
     * If a location is not suitable to be seen, an empty string will be placed.
     */
     message SplitLocation {
         required string location = 1;
         required sint64 repeat = 2;
     }
     repeated SplitLocation locations = 4;
}
```

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of CUs consumed by this request.

schema:

- Type: PrimaryKeySchema
- This parameter specifies the schema of the table. The schema is the same as the schema provided when the table is created.

split_points:

- Type: repeated bytes
- The split points between partitions. The split points must increase monotonically between the

partitions. Each split point is a PlainBuffer-encoded line and contains only primary keys. The last -inf of each split point is not transmitted to reduce the volume of data transmitted.

locations:

- Type: repeated SplitLocation
- This parameter specifies the prompt about the hosts where the split points reside. It can be null.

For example, a table contains three columns of primary keys, where the first column is of the string type. After this API is called, five partitions are obtained, which are (-inf,-inf,-inf) to ("a",-inf,-inf), ("a",-inf,-inf) to ("b",-inf,-inf), ("b",-inf,-inf) to ("c",-inf,-inf), ("c",-inf,-inf) to ("d",-inf,-inf), and ("d",-inf,-inf) to (+inf,+inf,+inf). The first three partitions reside in machine-A, while the last two in machine-B. In this case, split_points is (example) `[("a"),("b"),("c"),("d")]`, whereas locations is (example) `"machine-A"*3, "machine-B"*2`.

CU consumption

The number of consumed read CUs is the same as that of the partitions. No write CUs are consumed.

7.1.1.1.1.14. ListStream

Action

You can use the ListStream API to obtain information about the stream that is enabled for all tables in the current instance.

Request structure

```
message ListStreamRequest {
    optional string table_name = 1;
}
```

table_name:

- Type: optional string
- This parameter specifies the name of the table for which the current stream is enabled.

Response structure

```
message ListStreamResponse {
    repeated Stream streams = 1;
}
message Stream {
    required string stream_id = 1;
    required string table_name = 2;
    required int64 creation_time = 3;
}
```

stream_id:

- Type: repeated string
- This parameter specifies the ID of the current stream.

table_name:

- Type: required string
- This parameter specifies the name of the table for which the current stream is enabled.

creation_time:

- Type: required int64
- This parameter specifies the time the current stream is enabled.

7.1.1.1.1.15. DescribeStream

Action

You can use the DescribeStream API to obtain information about the partitions of the current stream.

Request structure

```
message DescribeStreamRequest {
    required string stream_id = 1;
    optional string inclusive_start_shard_id = 2;
    optional int32 shard_limit = 3;
}
```

stream_id:

- Type: required string
- This parameter specifies the ID of the current stream.

inclusive_start_shard_id:

- Type: required string
- This parameter specifies the ID of the starting partition in a query.

shard_limit:

- Type: required string
- This parameter specifies the upper limit of the returned partition quantity in a single query.

Response structure

```
message DescribeStreamResponse {
    required string stream_id = 1;
    required int32 expiration_time = 2;
    required string table_name = 3;
    required int64 creation_time = 4;
    required StreamStatus stream_status = 5;
    repeated StreamShard shards = 6;
    optional string next_shard_id = 7;
}
message StreamShard {
    required string shard_id = 1;
    optional string parent_id = 2;
    optional string parent_sibling_id = 3;
}
```

stream_id:

- Type: required string
- This parameter specifies the ID of the current stream.

expiration_time:

- Type: required int32
- This parameter specifies the expiration time of the stream.

table_name:

- Type: required string
- This parameter specifies the name of the table for which the current stream is enabled.

creation_time:

- Type: required int32
- This parameter specifies the time the current stream is enabled.

stream_status:

- Type: required StreamStatus
- This parameter specifies the status of the current stream, which can be enabling or active.

shards:

- Type: required StreamShard
- This parameter specifies the information about the streamShard, including the partition ID, parent partition ID, and information about the neighbor partition of the parent partition (applicable when the parent partition is merged).

next_shard_id:

- Type: optional string
- This parameter specifies the start ID of the next partition in a paging query.

Note

Data reading for the parent partition must be completed before data of the current partition is read.

7.1.1.1.1.16. GetShardIterator

Action

You can use the GetShardIterator API to obtain the response of the start iterator for reading the record information of the current partition.

Request structure

```
message GetShardIteratorRequest {
    required string stream_id = 1;
    required string shard_id = 2;
}
```

stream_id:

- Type: required string

- This parameter specifies the ID of the current stream.

shard_id:

- Type: required string
- This parameter specifies the ID of the current partition.

Response structure

```
message GetShardIteratorResponse {
    required string shard_iterator = 1;
}
```

shard_iterator:

- Type: required string
- This parameter specifies the start iterator for reading the record of the current partition.

7.1.1.1.1.17. GetStreamRecord

Action

You can use the GetStreamRecord API to obtain the incremental content of the current partition.

Request structure

```
message GetStreamRecordRequest {
    required string shard_iterator = 1;
    optional int32 limit = 2;
}
```

shard_iterator:

- Type: required string
- This parameter specifies the iterator for reading the current partition next time.

Response structure

```
message GetStreamRecordResponse {
    message StreamRecord {
        required ActionType action_type = 1;
        required bytes record = 2;
    }
    repeated StreamRecord stream_records = 1;
    optional raw_string next_shard_iterator = 2;
    optional ConsumedCapacity consumed = 3;
}
```

StreamRecord:

- Type: repeated StreamRecord
- This parameter specifies the record entry for reading the current partition.

shard_iterator:

- Type: required string
- This parameter specifies the iterator for reading the current partition next time.

consumed:

- Type: ConsumedCapacity
- This parameter specifies the number of CUs consumed by this operation.
- The sum of data in all rows of a table for stream read is calculated based on the following formula: Number of consumed read CUs = (Size of actually read columns/4 KB) rounded up.

7.1.1.1.1.18. Tablestore ProtocolBuffer message definitions

This topic describes the detailed definitions of table_store.proto and table_store_filter.proto.

table_store.proto

```
package com.alicloud.openservices.tablestore.core.protocol;
message Error {
    required string code = 1;
    optional string message = 2;
}
enum PrimaryKeyType {
    INTEGER = 1;
    STRING = 2;
    BINARY = 3;
}
enum PrimaryKeyOption {
    AUTO_INCREMENT = 1;
}
message PrimaryKeySchema {
    required string name = 1;
    required PrimaryKeyType type = 2;
    optional PrimaryKeyOption option = 3;
}
message TableOptions {
    optional int32 time_to_live = 1; // This parameter value can be dynamically modified.
    optional int32 max_versions = 2; // This parameter value can be dynamically modified.
    optional int64 deviation_cell_version_in_sec = 5; // This parameter value can be dynami
cally modified.
}
message TableMeta {
    required string table_name = 1;
    repeated PrimaryKeySchema primary_key = 2;
}
enum RowExistenceExpectation {
    IGNORE = 0;
    EXPECT_EXIST = 1;
    EXPECT_NOT_EXIST = 2;
}
message Condition {
    required RowExistenceExpectation row_existence = 1;
    optional bytes column_condition      = 2;
```

```
}
message CapacityUnit {
    optional int32 read = 1;
    optional int32 write = 2;
}
message ReservedThroughputDetails {
    required CapacityUnit capacity_unit = 1; // This parameter indicates the current reserv
ed throughput of the table.
    required int64 last_increase_time = 2; // This parameter indicates the last time the re
served throughput was raised.
    optional int64 last_decrease_time = 3; // This parameter indicates the last time the re
served throughput was lowered.
}
message ReservedThroughput {
    required CapacityUnit capacity_unit = 1;
}
message ConsumedCapacity {
    required CapacityUnit capacity_unit = 1;
}
/* ############################################  CreateTable  ############################
################ */
/**
 * table_meta is used to store schema attributes that cannot be modified in a table. The Re
servedThroughput and TableOptions attributes that can be modified are stored as the paramet
ers for UpdateTable.
 * message CreateTableRequest {
 *         required TableMeta table_meta = 1;
 *         required ReservedThroughput reserved_throughput = 2;
 *         required TableOptions table_options = 3;
 * }
 */
message CreateTableRequest {
    required TableMeta table_meta = 1;
    required ReservedThroughput reserved_throughput = 2;
    optional TableOptions table_options = 3;
}
message CreateTableResponse {
}
/* ###################################################################################
################ */
/* ############################################  UpdateTable  ############################
################ */
message UpdateTableRequest {
    required string table_name = 1;
    optional ReservedThroughput reserved_throughput = 2;
    optional TableOptions table_options = 3;
}
message UpdateTableResponse {
    required ReservedThroughputDetails reserved_throughput_details = 1;
    required TableOptions table_options = 2;
}
/* ###################################################################################
################ */
/* ############################################  DescribeTable  ##########################
```

```
################### */
message DescribeTableRequest {
    required string table_name = 1;
}
message DescribeTableResponse {
    required TableMeta table_meta = 1;
    required ReservedThroughputDetails reserved_throughput_details = 2;
    required TableOptions table_options = 3;
    repeated bytes shard_splits = 6;
}
/* ##########################################################################################
################### */
/* ##############################################  ListTable  ##############################
################ */
message ListTableRequest {
}
/**
 * Only a simple name list is returned.
 */
message ListTableResponse {
    repeated string table_names = 1;
}
/* ##########################################################################################
################ */
/* ##############################################  DeleteTable  ############################
################## */
message DeleteTableRequest {
    required string table_name = 1;
}
message DeleteTableResponse {
}
/* ##############################################  UnloadTable  ############################
################## */
message UnloadTableRequest {
    required string table_name = 1;
}
message UnloadTableResponse {
}
/* ##########################################################################################
################### */
/**
 * Valid values: [0, INT64.MAX).
 * 1. To query data of a time range, specify start_time and end_time.
 * 2. To query data of a specific timestamp, specify specific_time.
 */
message TimeRange {
    optional int64 start_time = 1;
    optional int64 end_time = 2;
    optional int64 specific_time = 3;
}
/* ##############################################  GetRow  ##################################
############ */
enum ReturnType {
    RT_NONE = 0;
```

```
    RT_PK = 1;
}
message ReturnContent {
    optional ReturnType return_type = 1;
}
/**
 * 1. You can specify the timestamp range or time to read the specified version of a column
.
 * 2. Intra-row breakpoints are not supported.
 */
message GetRowRequest {
    required string table_name = 1;
    required bytes primary_key = 2; // encoded as InplaceRowChangeSet, but only has primary
key
    repeated string columns_to_get = 3; // If this parameter is not specified, all columns
are read.
    optional TimeRange time_range = 4;
    optional int32 max_versions = 5;
    optional bytes filter = 7;
    optional string start_column = 8;
    optional string end_column = 9;
    optional bytes token = 10;
}
message GetRowResponse {
    required ConsumedCapacity consumed = 1;
    required bytes row = 2; // encoded as InplaceRowChangeSet
    optional bytes next_token = 3;
}
/* ##########################################################################################
############ */
/* ##########################################  UpdateRow  ##############################
############### */
message UpdateRowRequest {
    required string table_name = 1;
    required bytes row_change = 2;
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
message UpdateRowResponse {
    required ConsumedCapacity consumed = 1;
    optional bytes row = 2;
}
/* ##########################################################################################
############### */
/* ##########################################  PutRow  ##################################
############ */
/**
 * You can set a timestamp for each column instead of configuring a unified timestamp for t
he entire row.
 */
message PutRowRequest {
    required string table_name = 1;
    required bytes row = 2; // encoded as InplaceRowChangeSet
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
```

```
    optional ReturnContent return_content = 4;
}
message PutRowResponse {
    required ConsumedCapacity consumed = 1;
    optional bytes row = 2;
}
/* ##########################################################################################
############ */
/* ##############################################  DeleteRow  ##############################
############### */
/**
 * Tablestore allows you only to delete versions of all columns from a row. It does not all
ow you to:
 *  1. Delete the specified version and versions earlier than it.
 */
message DeleteRowRequest {
    required string table_name = 1;
    required bytes primary_key = 2; // encoded as InplaceRowChangeSet, but only has primary
key
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
message DeleteRowResponse {
    required ConsumedCapacity consumed = 1;
    optional bytes row = 2;
}
/* ##########################################################################################
############### */
/* ##############################################  BatchGetRow  ############################
################ */
message TableInBatchGetRowRequest {
    required string table_name = 1;
    repeated bytes primary_key = 2; // encoded as InplaceRowChangeSet, but only has primary
key
    repeated bytes token = 3;
    repeated string columns_to_get = 4; &amp;nbsp;// If this parameter is not specified, all co
lumns are read.
    optional TimeRange time_range = 5;
    optional int32 max_versions = 6;
    optional bytes filter = 8;
    optional string start_column = 9;
    optional string end_column = 10;
}
message BatchGetRowRequest {
    repeated TableInBatchGetRowRequest tables = 1;
}
message RowInBatchGetRowResponse {
    required bool is_ok = 1;
    optional Error error = 2;
    optional ConsumedCapacity consumed = 3;
    optional bytes row = 4; // encoded as InplaceRowChangeSet
    optional bytes next_token = 5;
}
message TableInBatchGetRowResponse {
    required string table_name = 1;
```

```
    repeated RowInBatchGetRowResponse rows = 2;
}
message BatchGetRowResponse {
    repeated TableInBatchGetRowResponse tables = 1;
}
/* ##########################################################################################
################ */
/* ##########################################  BatchWriteRow  ###########################
################## */
enum OperationType {
    PUT = 1;
    UPDATE = 2;
    DELETE = 3;
}
message RowInBatchWriteRowRequest {
    required OperationType type = 1;
    required bytes row_change = 2; // encoded as InplaceRowChangeSet
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
message TableInBatchWriteRowRequest {
    required string table_name = 1;
    repeated RowInBatchWriteRowRequest rows = 2;
}
message BatchWriteRowRequest {
    repeated TableInBatchWriteRowRequest tables = 1;
}
message RowInBatchWriteRowResponse {
    required bool is_ok = 1;
    optional Error error = 2;
    optional ConsumedCapacity consumed = 3;
    optional bytes row = 4;
}
message TableInBatchWriteRowResponse {
    required string table_name = 1;
    repeated RowInBatchWriteRowResponse rows = 2;
}
message BatchWriteRowResponse {
    repeated TableInBatchWriteRowResponse tables = 1;
}
/* ##########################################################################################
################## */
/* ##########################################  GetRange  ##################################
############## */
enum Direction {
    FORWARD = 0;
    BACKWARD = 1;
}
message GetRangeRequest {
    required string table_name = 1;
    required Direction direction = 2;
    repeated string columns_to_get = 3;  // If this parameter is not specified, all columns
are read.
    optional TimeRange time_range = 4;
```

```
    optional int32 max_versions = 5;
    optional int32 limit = 6;
    required bytes inclusive_start_primary_key = 7; // encoded as InplaceRowChangeSet, but
only has primary key
    required bytes exclusive_end_primary_key = 8; // encoded as InplaceRowChangeSet, but on
ly has primary key
    optional bytes filter = 10;
    optional string start_column = 11;
    optional string end_column = 12;
    optional bytes token = 13;
}
message GetRangeResponse {
    required ConsumedCapacity consumed = 1;
    required bytes rows = 2; // encoded as InplaceRowChangeSet
    optional bytes next_start_primary_key = 3; // If this parameter is not specified, all d
ata is read. next_start_primary_key is encoded as InplaceRowChangeSet, but only contains pr
imary key.
    optional bytes next_token = 4;
}
/* ####################  ComputeSplitPointsBySize  ################### */
message ComputeSplitPointsBySizeRequest {
    required string table_name = 1;
    required int64 split_size = 2; // in 100MB
}
message ComputeSplitPointsBySizeResponse {
    required ConsumedCapacity consumed = 1;
    repeated PrimaryKeySchema schema = 2;
    /**
     * Split points between splits, in the increasing order
     *
     * A split is a consecutive range of primary keys,
     * whose data size is about split_size specified in the request.
     * The size could be hard to be precise.
     *
     * A split point is an array of primary-key column w.r.t. table schema,
     * which is never longer than that of table schema.
     * Tailing -inf will be omitted to reduce transmission payloads.
     */
    repeated bytes split_points = 3;
    /**
     * Locations where splits lies in.
     *
     * By the managed nature of TableStore, these locations are no more than hints.
     * If a location is not suitable to be seen, an empty string will be placed.
     */
     message SplitLocation {
         required string location = 1;
         required sint64 repeat = 2;
     }
     repeated SplitLocation locations = 4;
}
```

table_store_filter.proto

```
package com.alicloud.openservices.tablestore.core.protocol;
enum FilterType {
    FT_SINGLE_COLUMN_VALUE = 1;
    FT_COMPOSITE_COLUMN_VALUE = 2;
    FT_COLUMN_PAGINATION = 3;
}
enum ComparatorType {
    CT_EQUAL = 1;
    CT_NOT_EQUAL = 2;
    CT_GREATER_THAN = 3;
    CT_GREATER_EQUAL = 4;
    CT_LESS_THAN = 5;
    CT_LESS_EQUAL = 6;
}
message SingleColumnValueFilter {
    required ComparatorType comparator = 1;
    required string column_name = 2;
    required bytes column_value = 3;
    required bool filter_if_missing = 4;
    required bool latest_version_only = 5;
}
enum LogicalOperator {
    LO_NOT = 1;
    LO_AND = 2;
    LO_OR = 3;
}
message CompositeColumnValueFilter {
    required LogicalOperator combinator = 1;
    repeated Filter sub_filters = 2;
}
message ColumnPaginationFilter {
    required int32 offset = 1;
    required int32 limit = 2;
}
message Filter {
    required FilterType type = 1;
    required bytes filter = 2;  // Serialized string of filter of the type
}
```

7.1.1.1.1.19. CreateIndex

You can call this operation to create an index table for the specified base table.

Request syntax

```
message CreateIndexRequest {
    required string main_table_name = 1;
    required IndexMeta index_meta = 2;
    optional bool include_base_data = 3;
}
```

main_table_name

- Type: string.
- Required: yes.
- This parameter specifies the name of the base table for which to create an index table.

index_meta

- Type: IndexMeta.
- Required: yes.
- This parameter specifies the schema of the index table to be created.

include_base_data

- Type: Boolean.
- Required: no.
- This parameter specifies whether the existing data of the base table is included in the index table to be created.

Response syntax

```
message CreateIndexResponse {
}
```

7.1.1.1.1.20. DeleteIndex

You can call this operation to delete an index table from the specified base table.

Request syntax

```
message DropIndexRequest {
    required string main_table_name = 1;
    required string index_name = 2;
}
```

main_table_name

- Type: string.
- Required: yes.
- This parameter specifies the name of the base table from which to delete an index table.

index_name

- Type: string.
- Required: yes.
- This parameter specifies the name of the index table to be deleted.

Response syntax

```
message DropIndexResponse {
}
```

7.1.1.1.2. DataType

7.1.1.1.2.1. ActionType

ActionType specifies the operation type in the response of the GetStreamRecord operation. Operation types include:

- PUT_ROW indicates that the operation type is PutRow.
- UPDATE_ROW indicates that the operation type is UpdateRow.
- DELETE_ROW indicates that the operation type is DeleteRow.

Enumeration values

```
enum ActionType {
    PUT_ROW = 1;
    UPDATE_ROW = 2;
    DELETE_ROW = 3;
}
```

7.1.1.1.2.2. CapacityUnit

CapacityUnit specifies the number of CUs consumed in an operation, or reserved read/write throughput of a table.

Data structure

```
message CapacityUnit {
    optional int32 read = 1;
    optional int32 write = 2;
}
```

read:

- Type: int32
- Description: the number of read CUs consumed by this operation or the reserved read throughput for this table.

write:

- Type: int32
- Description: the number of write CUs consumed by this operation or the reserved write throughput for this table.

7.1.1.1.2.3. ColumnPaginationFilter

ColumnPaginationFilter specifies the filtering conditions for reading wide rows. This API is applicable to the Filter function.

Data structure

```
message ColumnPaginationFilter {
 required int32 offset = 1;
 required int32 limit = 2;
}
```

offset:

- Type: int32
- Description: the position of the column to start reading from.

limit:

- Type: int32
- Description: the number of columns to be read.

7.1.1.1.2.4. ComparatorType

ComparatorType is an arithmetical operator. It includes the following enumeration types:

- CT_EQUAL indicates equal to.
- CT_NOT_EQUAL indicates not equal to.
- CT_GREATER_THAN indicates greater than.
- CT_GREATER_EQUAL indicates not smaller than.
- CT_LESS_THAN indicates smaller than.
- CT_LESS_EQUAL indicates not greater than.

Enumeration values

```
enum ComparatorType {
 CT_EQUAL = 1;
 CT_NOT_EQUAL = 2;
 CT_GREATER_THAN = 3;
 CT_GREATER_EQUAL = 4;
 CT_LESS_THAN = 5;
 CT_LESS_EQUAL = 6;
}
```

7.1.1.1.2.5. CompositeColumnValueFilter

CompositeColumnValueFilter specifies a group of conditions, for example, column_a > 5 AND column_b = 10. This API is applicable to the ConditionUpdate and Filter functions.

Data structure

```
message CompositeColumnValueFilter {
 required LogicalOperator combinator = 1;
 repeated Filter sub_filters = 2;
}
```

combinator:

- Type: LogicalOperator

- Description: the logical operator.

sub_filter:

- Type: Filter
- Description: the sub-condition expression.

7.1.1.1.2.6. Condition

Condition specifies the row judgment conditions in PutRow, UpdateRow, and DeleteRow. It contains the row_existence and column_condition parameters.

Data structure

```
message Condition {
    required RowExistenceExpectation row_existence = 1;
    optional bytes column_condition      = 2;
}
```

row_existence:

- Type: RowExistenceExpectation
- Description: the row existence check settings for this row.

column_condition:

- Type: bytes
- Description: the column condition settings. This parameter indicates the binary data (in bytes) after the filter is serialized in the Protobuf format.

7.1.1.1.2.7. ConsumedCapacity

ConsumedCapacity indicates the number of capacity units (CUs) consumed by an operation.

Data structure

```
message ConsumedCapacity {
    required CapacityUnit capacity_unit = 1;
}
```

capacity_unit:

- Type: CapacityUnit
- Description: the number of CUs consumed by this operation.

7.1.1.1.2.8. Direction

Direction indicates the data query order in the GetRange operation. The two Direction operations are:

- FORWARD indicates that the query proceeds in ascending order of primary key values.
- BACKWARD indicates that the query proceeds in descending order of primary key values.

Enumeration values

```
enum Direction {
 FORWARD = 0;
 BACKWARD = 1;
}
```

7.1.1.1.2.9. Error

Error indicates an error message returned when an operation fails. This parameter is also used to indicate errors for single-row requests in the BatchGetRow and BatchWriteRow operations.

Data structure

```
Error {
 required string code = 1;
 optional string message = 2;
}
```

code:

- Type: string
- Description: the error code for the specified single-row operation.

message:

- Type: string
- Description: the error message for the specified single-row operation.

7.1.1.1.2.10. Filter

Filter specifies the column-based conditions. This API is applicable to the Conditional Update and Filter functions.

Data structure

```
message Filter {
 required FilterType type = 1;
 required bytes filter = 2;
}
```

type:

- Type: FilterType
- Description: the column condition type.

filter:

- Type: bytes
- Description: the binary data generated after the condition statements of CompositeColumnValueFilter, ColumnPaginationFilter, or SingleColumnValueFilter are serialized in the Protobuf format.

7.1.1.1.2.11. PrimaryKeyOption

PrimaryKeyOption specifies the attribute value of a primary key. Currently, it only supports AUTO_INCREMENT.

Enumeration values

```
enum PrimaryKeyOption {
 AUTO_INCREMENT = 1;
}
```

7.1.1.1.2.12. FilterType

FilterType specifies the type for condition updates or filters. The types include:

- FT_SINGLE_COLUMN_VALUE indicates a single-column condition.
- FT_COMPOSITE_COLUMN_VALUE indicates a multi-column composite condition.
- FT_COLUMN_PAGINATION indicates a wide-row read condition.

Enumeration values

```
enum FilterType {
 FT_SINGLE_COLUMN_VALUE = 1;
 FT_COMPOSITE_COLUMN_VALUE = 2;
 FT_COLUMN_PAGINATION = 3;
}
```

7.1.1.1.2.13. LogicalOperator

LogicalOperator specifies the enumeration type. The enumeration types include:

- LO_NOT indicates NOT.
- LO_AND indicates AND.
- LO_OR indicates OR.

Enumeration values

```
enum LogicalOperator {
 LO_NOT = 1;
 LO_AND = 2;
 LO_OR = 3;
}
```

7.1.1.1.2.14. OperationType

OperationType indicates the modification method for one column in UpdateRow. The types of operations include:

- PUT indicates that a column is inserted or data in this column is overwritten.
- UPDATE indicates that a column is updated.
- DELETE indicates that a column is deleted.

Enumeration values

```
enum OperationType {
 PUT = 1;
 UPDATE = 2;
 DELETE = 3;
}
```

7.1.1.1.2.15. PartitionRange

PartitionRange specifies the partition range.

Data structure

```
message PartitionRange {
    required bytes begin = 1; // encoded as SQLVariant
    required bytes end = 2; // encoded as SQLVariant
}
```

begin:

- Type: bytes
- Description: the starting key of the partition. The partition range is a left-closed right-open interval, which includes the starting key.

end:

- Type: bytes
- Description: the ending key of the partition. The partition range is a left-closed right-open interval, which excludes the ending key.

7.1.1.1.2.16. PlainBuffer

Compared with Protocol Buffer, PlainBuffer delivers better performance for serialization and resolution of small objects. Therefore, PlainBuffer is used to format data in Tablestore.

Format definition

```
plainbuffer = tag_header row1  [row2]  [row3]
row = ( pk [attr] | [pk] attr | pk attr ) [tag_delete_marker] row_checksum;
pk = tag_pk cell_1 [cell_2] [cell_3]
attr  = tag_attr cell1 [cell_2] [cell_3]
cell = tag_cell cell_name [cell_value] [cell_op] [cell_ts] cell_checksum
cell_name = tag_cell_name  formated_value
cell_value = tag_cell_value formated_value
cell_op = tag_cell_op  cell_op_value
cell_ts = tag_cell_ts cell_ts_value
row_checksum = tag_row_checksum row_crc8
cell_checksum = tag_cell_checksum row_crc8
formated_value = value_type value_len value_data
value_type = int8
value_len = int32
cell_op_value = delete_all_version | delete_one_version
cell_ts_value = int64
delete_all_version = 0x01 (1byte)
delete_one_version = 0x03 (1byte)
```

Tag values

```
tag_header = 0x75 (4byte)
tag_pk = 0x01 (1byte)
tag_attr = 0x02 (1byte)
tag_cell = 0x03 (1byte)
tag_cell_name = 0x04 (1byte)
tag_cell_value = 0x05 (1byte)
tag_cell_op = 0x06 (1byte)
tag_cell_ts = 0x07 (1byte)
tag_delete_marker = 0x08 (1byte)
tag_row_checksum = 0x09 (1byte)
tag_cell_checksum = 0x0A (1byte)
```

ValueType values

Valid values of value_type in formated_value:

```
VT_INTEGER = 0x0
VT_DOUBLE = 0x1
VT_BOOLEAN = 0x2
VT_STRING = 0x3
VT_NULL = 0x6
VT_BLOB = 0x7
VT_INF_MIN = 0x9
VT_INF_MAX = 0xa
VT_AUTO_INCREMENT = 0xb
```

Checksum calculation

The checksum is calculated based on the following basic logic:

- The name, value, type, and timestamp of each cell is calculated.

- The delete mark of each row is calculated. A byte of 1 is added for each row that has a delete mark. A byte of 0 is added for each row that does not have a delete mark.
- After the checksum is calculated for each cell in a row, these cell checksums are used to calculate the row checksum. The CRC is performed only on the cells in the row, instead of data in the row.

The following code provides an example on how to implement CRC in C++:

```
void GetChecksum(uint8_t* crc, const InplaceCell& cell)
{
    Crc8(crc, cell.GetName());
    Crc8(crc, cell.GetValue().GetInternalSlice());
    Crc8(crc, cell.GetTimestamp());
    Crc8(crc, cell.GetOpType());
}
void GetChecksum(uint8_t* crc, const InplaceRow& row)
{
    const std::deque<InplaceCell>& pk = row.GetPrimaryKey();
    for (size_t i = 0; i < pk.size(); i++) {
        uint8_t* cellcrc;
        *cellcrc = 0;
        GetChecksum(cellcrc, pk[i]);
        Crc8(crc, *cellcrc);
    }
    for (int i = 0; i < row.GetCellCount(); i++) {
        uint8_t* cellcrc;
        *cellcrc = 0;
        GetChecksum(cellcrc, row.GetCell(i));
        Crc8(crc, *cellcrc);
    }
    uint8_t del = 0;
    if (row.HasDeleteMarker()) {
        del = 1;
    }
    Crc8(crc, del);
}
```

Example

A row contains two primary key columns and four attribute columns. The data types of the primary key columns are string and integer, while the data types in the attribute columns are string, integer, and double. The versions are 1001, 1002, and 1003. The fourth attribute column indicates whether to delete all versions.

- Primary key columns:
  - [pk1:string:iampk]
  - [pk2:integer:100]
- Attribute columns:
  - [column1:string:bad:1001]
  - [column2:integer:128:1002]
  - [column3:double:34.2:1003]
  - [column4:del_all_versions]

Encoding:

```
<The start position for headers>[0x75]
<The start position for primary key columns>[0x1]
<Cell1>[0x3][0x4][3][pk1][0x5][3][5][iampk]
<Cell2>[0x3][0x4][3][pk2][0x5][0][100]
<The start position for attribute columns>[0x2]
<Cell1>[0x3][0x4][7][column1][0x5][0x3][3][bad][0x7][1001]
<Cell2>[0x3][0x4][7][column2][0x5][0x0][128][0x7][1002]
<Cell3>[0x3][0x4][7][column3][0x5][0x1][34.2][0x7][1003]
<Cell4>[0x3][0x4][7][column4][0x5][0x6][1]
```

7.1.1.1.2.17. PrimaryKeySchema

PrimaryKeySchema specifies the attribute value of a primary key.

Data structure

```
message PrimaryKeySchema {
 required string name = 1;
 required PrimaryKeyType type = 2;
 optional PrimaryKeyOption option = 3;
}
```

name:

- Type: string
- Description: the name of the column.

type:

- Type: PrimaryKeyType
- Description: the type of the column.

option:

- Type: PrimaryKeyOption
- Description: the additional attribute value of the column.

7.1.1.1.2.18. PrimaryKeyType

PrimaryKeyType specifies the type of a primary key.

Enumeration data types

- INTEGER
- STRING
- BINARY

```
enum PrimaryKeyType {
 INTEGER = 1;
 STRING = 2;
 BINARY = 3;
}
```

7.1.1.1.2.19. ReservedThroughput

ReservedThroughput indicates the reserved read/write throughput value for a table.

Data structure

```
message ReservedThroughput {
 required CapacityUnit capacity_unit = 1;
}
```

capacity_unit:

- Type: CapacityUnit
- Description: the current reserved read/write throughput value for the table.

7.1.1.1.2.20. ReservedThroughputDetails

ReservedThroughputDetails indicates the reserved read/write throughput information of a table.

Data structure

```
message ReservedThroughputDetails {
    required CapacityUnit capacity_unit = 1;
    required int64 last_increase_time = 2;
    optional int64 last_decrease_time = 3;
    required int32 number_of_decreases_today = 4;
}
```

capacity_unit:

- Type: CapacityUnit
- Description: the reserved read/write throughput value for this table.

last_increase_time:

- Type: int64
- Description: the last time the reserved read/write throughput capacity was raised for this table. The value uses UTC time, in seconds.

last_decrease_time:

- Type: int64
- Description: the last time the reserved read/write throughput capacity was lowered for this table. The value uses UTC time, in seconds.

number_of_decreases_today:

- Type: int32
- Description: the number of times the reserved read/write throughput capacity was lowered for this table on the current calendar day.

7.1.1.1.2.21. ReturnContent

ReturnContent specifies the content of the returned data.

Data structure

```
message ReturnContent {
    optional ReturnType return_type = 1;
}
```

return_type:

- Type: ReturnType
- Description: the type of the returned data.

7.1.1.1.2.22. ReturnType

ReturnType specifies the type of the returned data.

Enumeration data types

```
enum ReturnType {
    RT_NONE = 0;
    RT_PK = 1;
}
```

- RT_NONE: the default value. This parameter indicates that no value is returned.
- RT_PK: This parameter indicates that the primary key is returned.

7.1.1.1.2.23. RowExistenceExpectation

RowExistenceExpectation specifies conditions for row existence. Enumeration types are as follows:

- IGNORE indicates that the row existence check is not performed.
- EXPECT_EXIST indicates that the row is expected to exist.
- EXPECT_NOT_EXIST indicates that this row is not expected to exist.

Enumeration values

```
enum RowExistenceExpectation {
    IGNORE = 0;
    EXPECT_EXIST = 1;
    EXPECT_NOT_EXIST = 2;
}
```

7.1.1.1.2.24. RowInBatchGetRowResponse

RowInBatchGetRowResponse indicates a row of data in the response of the BatchGetRow operation.

Data structure

```
message RowInBatchGetRowResponse {
 required bool is_ok = 1 [default = true];
 optional Error error = 2;
 optional ConsumedCapacity consumed = 3;
 optional bytes row = 4;
 optional bytes next_token = 5;
}
```

is_ok:

- Type: bool
- Description: determines whether the operation for this row succeeds. If true is returned, the row is read and error is invalid. If false is returned, the row fails to be read and the row is invalid.

error:

- Type: Error
- Description: the error message for this row operation.

consumed:

- Type: ConsumedCapacity
- Description: the number of capacity units consumed by this row operation.

row:

- Type: bytes
- The read data is encoded in the PlainBuffer format.
- If this row does not exist, null is returned.

next_token:

- Type: bytes
- This parameter specifies the starting position of a wide row in the next read operation. This function is currently unavailable.

7.1.1.1.2.25. RowInBatchWriteRowRequest

RowInBatchWriteRowRequest indicates the information of the row to be written, updated, or deleted in the BatchWriteRow operation.

Data structure

```
message RowInBatchWriteRowRequest {
    required OperationType type = 1;
    required bytes row_change = 2; // It is encoded as InplaceRowChangeSet.
    required Condition condition = 3;
    optional ReturnContent return_content = 4;
}
```

type:

- Type: OperationType
- Description: the operation type.

row_change:

- Type: bytes
- Description: the data in a row that contains the primary key and attribute columns. The columns are encoded in the PlainBuffer format.

condition:

- Type: Condition
- Description: the value of conditional update, including the row existence condition and column-based condition.

return_content:

- Type: ReturnContent
- Required: no
- This parameter specifies the data type after the row is written. Currently, only the primary key is returned, which is used for the auto-increment function of the primary key column.

7.1.1.1.2.26. RowInBatchWriteRowResponse

RowInBatchWriteRowResponse indicates the write operation result for a row in the response of the BatchWriteRow operation.

Data structure

```
message RowInBatchWriteRowResponse {
 required bool is_ok = 1 [default = true];
 optional Error error = 2;
 optional ConsumedCapacity consumed = 3;
}
```

is_ok:

- Type: bool
- Description: determines whether the operation for this row succeeds. If the value is true, the row is written and error is invalid. If the value is false, this row fails to be written.

error:

- Type: Error
- Description: the error message for this row operation.

consumed:

- Type: ConsumedCapacity
- Description: the number of capacity units consumed by this row operation.

7.1.1.1.2.27. SingleColumnValueFilter

SingleColumnValueFilter specifies a single condition, for example, column_a > 5. This API is applicable to the ConditionUpdate and Filter functions.

Data structure

```
message SingleColumnValueFilter {
 required ComparatorType comparator = 1;
 required string column_name = 2;
 required bytes column_value = 3;
 required bool filter_if_missing = 4;
 required bool latest_version_only = 5;
}
```

comparator:

- Type: ComparatorType
- Description: the comparison type.

column_name:

- Type: string
- Description: the column name.

column_value:

- Type: bytes
- Description: the value of ColumnValue serialized by protobuf.

filter_if_missing:

- Type: bool
- Description: determines whether a filtering condition is applicable if the column of a row does not exist. Assume that the condition is column_a > 0, and the value of filter_if_missing is true. If column_a does not exist for a row, the condition column_a > 0 is true.

latest_version_only:

- Type: bool
- Description: determines whether a condition is applicable only for the latest version. If the value is true, the value of the latest version is checked to determine whether it meets the condition. If the value is false, the values of all versions are checked to determine whether they meet the conditions.

7.1.1.1.2.28. StreamDetails

StreamDetails indicates the stream information of a table.

Data structure

```
message StreamDetails {
    required bool enable_stream = 1;
    optional string stream_id = 2;
    optional int32 expiration_time = 3;
    optional int64 last_enable_time = 4;
}
```

enable_stream:

- Type: required bool
- Description: determines whether stream is enabled for the table.

stream_id:

- Type: optional string
- Description: the ID of the table stream.

expiration_time:

- Type: optional int32
- Description: the expiration time of the table stream.

last_enable_time:

- Type: optional int64
- Description: the time to enable the table stream.

7.1.1.1.2.29. StreamRecord

StreamRecord indicates a row of data in the response of the GetStreamRecord operation.

Data structure

```
message StreamRecord {
        required ActionType action_type = 1;
        required bytes record = 2;
}
```

action_type:

- Type: required ActionType
- Description: the operation type of the row.

record:

- Type: required bytes
- Description: the data content of the row.

7.1.1.1.2.30. StreamSpecification

StreamSpecification indicates the stream specification of a table.

Data structure

```
message StreamSpecification {
    required bool enable_stream = 1;
    optional int32 expiration_time = 2;
}
```

enable_stream:

- Type: bool
- Description: determines whether stream is enabled for the table.

expiration_time:

- Type: int32
- Description: the expiration time of the table stream.

7.1.1.1.2.31. TableInBatchGetRowRequest

TableInBatchGetRowRequest indicates the request information of the table to be read in the BatchGetRow operation.

Data structure

```
message TableInBatchGetRowRequest {
    required string table_name = 1;
    repeated bytes primary_key = 2; // The primary key columns are encoded in the PlainBuff
er format.
    repeated bytes token = 3;
    repeated string columns_to_get = 4;  // If this parameter is not specified, all columns
are read.
    optional TimeRange time_range = 5;
    optional int32 max_versions = 6;
    optional bool cache_blocks = 7 [default = true]; // This parameter specifies whether th
e read data is written to BlockCache.
    optional bytes filter = 8;
    optional string start_column = 9;
    optional string end_column = 10;
}
```

table_name:

- Type: string
- Description: the name of the table.

primary_key:

- Type: repeated bytes
- Required: yes
- This parameter specifies all primary key columns in the row, including the primary key names and values. The primary key columns are encoded in the PlainBuffer format.

token:

- Type: repeated bytes
- Required: no
- This parameter specifies the starting position of a wide row in the next read operation. This function is currently unavailable.

columns_to_get:

- Type: repeated string
- Description: the names of all columns to be returned from this table.

time_range:

- Type: TimeRange
- Required: At least one of the time_range and max_versions parameters must be specified.
- This parameter specifies the range of timestamps to read versions of data.
- Unit: millisecond. The minimum value of the timestamp is 0. The maximum value of the timestamp is INT64.MAX.

- To query data of a time range, specify start_time and end_time.
- To query data of a specific timestamp, specify specific_time.
- Example: If the value of time_range is (100, 200), the timestamp of the returned column data must be within the range of [100, 200).

max_versions:

- Type: int32
- Required: At least one of the max_versions and time_range parameters must be specified.
- This parameter specifies the maximum number of versions of data to be returned.
- Example: If the value of max_versions is 2, data of a maximum of two versions is returned for each column.

cache_blocks:

- Type: bool
- Required: no
- This parameter specifies whether the read data is written to BlockCache.
- The default value is true.
- This parameter cannot be set to false.

filter:

- Type: bytes
- Required: no
- This parameter specifies the expression of the filtering condition.
- It indicates the binary data after the filter is serialized in the Protobuf format.

start_column:

- Type: string
- Required: no
- This parameter specifies the first column to be read. It is useful for reading wide rows.
- The response contains the specified starting column.
- The column names are sorted lexicographically.
- Example: If a table contains columns A, B, and C, and the value of start_column is B, the data is read starting from column B. Columns B and C are returned.

end_column:

- Type: string
- Required: no
- This parameter specifies the last column to be read. It is useful for reading wide rows.
- The response does not contain the specified ending column.
- The column names are sorted lexicographically.
- Example: If a table contains columns A, B, and C, and the value of end_column is B, the reading stops at column B. Only column A is returned.

7.1.1.1.2.32. TableInBatchGetRowResponse

TableInBatchGetRowResponse indicates data in a table in the response of the BatchGetRow operation.

Data structure

```
message TableInBatchGetRowResponse {
 required string table_name = 1;
 repeated RowInBatchGetRowResponse rows = 2;
}
```

table_name:

- Type: string
- Description: the name of the table.

rows:

- Type: repeated RowInBatchGetRowResponse
- Description: data of all rows read from the table.

7.1.1.1.2.33. TableInBatchWriteRowRequest

TableInBatchWriteRowRequest indicates the request information of the table to be written in the BatchWriteRow operation.

Data structure

```
message TableInBatchWriteRowRequest {
 required string table_name = 1;
 repeated RowInBatchWriteRowRequest rows = 2;
}
```

table_name:

- Type: string
- Description: the name of the table.

rows:

- Type: repeated RowInBatchWriteRowRequest
- Description: the information of the row to be inserted, updated, or deleted in the table.

7.1.1.1.2.34. TableInBatchWriteRowResponse

TableInBatchWriteRowResponse indicates the write results for a table in the BatchWriteRow operation.

Data structure

```
message TableInBatchWriteRowResponse {
 required string table_name = 1;
 repeated RowInBatchWriteRowResponse put_rows = 2;
 repeated RowInBatchWriteRowResponse update_rows = 3;
 repeated RowInBatchWriteRowResponse delete_rows = 4;
}
```

table_name:

- Type: string

- Description: the name of the table.

put_rows:

- Type: RowInBatchWriteRowResponse
- Description: the result of the PutRow operation for the table.

update_rows:

- Type: RowInBatchWriteRowResponse
- Description: the result of the UpdateRow operation for the table.

delete_rows:

- Type: RowInBatchWriteRowResponse
- Description: the result of the DeleteRow operation for the table.

7.1.1.1.2.35. TableMeta

TableMeta indicates the structure information of a table.

Data structure

```
message TableMeta {
 required string table_name = 1;
 repeated PrimaryKeySchema primary_key = 2;
}
```

table_name:

- Type: string.
- Description: the name of the table.

primary_key:

- Type: PrimaryKeySchema
- Description: all primary key columns of the table.

7.1.1.1.2.36. TableOptions

TableOptions indicates the table parameters, including TimeToLive and MaxVersions.

Data structure

```
message TableOptions {
    optional int32 time_to_live = 1; // This parameter value can be dynamically modified.
    optional int32 max_versions = 2; // This parameter value can be dynamically modified.
    optional int64 deviation_cell_version_in_sec = 5; // This parameter value can be dynami
cally modified.
}
```

time_to_live:

- Type: int32
- Description: the retention time of data stored in this table, in seconds.

max_versions:

- Type: int32
- Description: the maximum number of versions stored in this table.

deviation_cell_version_in_sec:

- Type: int64
- Description: the maximum version deviation. This parameter is used to forbid writing data that deviates from the expected output. For example, if the value of deviation_cell_version_in_sec is 1,000 and the current timestamp is 10,000, the allowed timestamp range to be written is [10,000 - 1,000, 10,000 + 1,000].

7.1.1.1.2.37. TimeRange

TimeRange specifies the timestamp range or timestamp value to query.

Data structure

```
message TimeRange {
    optional int64 start_time = 1;
    optional int64 end_time = 2;
    optional int64 specific_time = 3;
}
```

start_time:

- Type: int64
- Description: the starting timestamp, in milliseconds. The minimum value of the timestamp is 0. The maximum value of the timestamp is INT64.MAX.

end_time:

- Type: int64
- Description: the ending timestamp, in milliseconds. The minimum value of the timestamp is 0. The maximum value of the timestamp is INT64.MAX.

specific_time:

- Type: int64
- Description: the specific timestamp, in milliseconds. You can set either specific_time to query a specific timestamp, or a combination of start_time and end_time to query a range of timestamps. The minimum value of the timestamp is 0. The maximum value of the timestamp is INT64.MAX.

7.1.2. SDK reference

7.1.2.1. SDK

7.1.2.1.1. Java SDK

7.1.2.1.1.1. Preface

This topic describes how to use Tablestore SDK for Java. This topic applies to Tablestore SDK for Java V5.0.0 and later.

Prerequisites

An authorized account is created, and an AccessKey pair (AccessKey ID and AccessKey secret) is obtained. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

Compatibility

Latest version: 5.7.0

- Tablestore SDK for Java V4.x.x: compatible
- Tablestore SDK for Java V2.x.x: incompatible

7.1.2.1.1.2. Installation

This topic describes how to install Tablestore SDK for Java.

Preparations

To install Tablestore SDK for Java, you must use JDK 6.0 or later versions.

Install SDK

You can install Tablestore SDK for Java by using one of the two following methods:

- Add dependencies to a Maven project

  To use Tablestore SDK for Java in Maven, you need only to add the corresponding dependencies to the pom.xml file. Tablestore SDK for Java V5.4.0. is used in this example. Add the following content to <dependencies>:

  ```
  <dependency>
      <groupId>com.aliyun.openservices</groupId>
      <artifactId>tablestore</artifactId>
      <version>5.4.0</version>
  </dependency>
  ```

- Import JAR packages into Eclipse

  Take Tablestore SDK for Java V5.4.0 as an example. To import JAR packages into Eclipse, perform the following operations:

  i. Download the SDK for Java package.
  ii. Decompress the SDK for Java package.
  iii. Copy the tablestore-<versionId>.jar file and all files in the lib folder to your project.
  iv. Right-click your project name in Eclipse and choose **Properties > Java Build Path > Add JARs**.
  v. Select all JAR packages you copied in step 3.

Sample programs

Tablestore SDK for Java provides a variety of sample programs for your reference or use. You can decompress the downloaded SDK package and view the sample programs in the examples folder.

7.1.2.1.1.3. Initialization

OTSClient is the client for Tablestore. It provides a series of methods for you to manage tables and perform read and write operations on a single row or multiple rows. To use Tablestore SDK for Java to initiate a request, you must initialize an OTSClient instance and modify the default configuration items of ClientConfiguration.

Obtain an endpoint

An endpoint is the domain name used to access a Tablestore instance in a region. The following table lists the examples of endpoints in the supported format.

Examples	Description
`http://sun.cn-hangzhou.ots.aliyuncs.com`	The public endpoint used to access the sun instance in the China (Hangzhou) region over HTTP.
`https://sun.cn-hangzhou.ots.aliyuncs.com`	The public endpoint used to access the sun instance in the China (Hangzhou) region over HTTPS.

Note Tablestore supports access over the Internet and internal network.

To query the endpoints of your Tablestore instance, perform the following operations:

1. Log on to the Tablestore console.
2. Click the instance name to go to the **Instance Management** page.

   On the Instance Details tab, you can view the endpoints of the instance in Instance Access URL.

Configure an AccessKey pair

To access Apsara Stack Tablestore, you must have a valid AccessKey pair (AccessKey ID and AccessKey secret) for signature authentication. The following types of AccessKey pairs are supported:

- The AccessKey pair (AccessKey ID and AccessKey secret) of your Apsara Stack tenant account.
  i. Create an Apsara Stack tenant account on the official Alibaba Cloud website.
  ii. Log on to the Apsara Uni-manager Management Console to apply for an AccessKey pair.
- The AccessKey pair (AccessKey ID and AccessKey secret) of a RAM user authorized to access Tablestore.
  i. Use your Apsara Stack tenant account to access RAM and create a new RAM user or use an existing one.
  ii. Use your Apsara Stack tenant account to authorize the RAM user to access Tablestore.
  iii. You can then use the AccessKey pair (AccessKey ID and AccessKey secret) of the authorized RAM user to access Tablestore.
- The AccessKey pair in temporary access credentials.
  i. The application server uses RAM or STS to obtain access credentials that consist of a temporary AccessKey ID, an AccessKey secret, and a token. After the access credentials are obtained, the application server sends them to you.
  ii. Use the received AccessKey ID, AccessKey Secret, and token to access Tablestore.

Initialize a Tablestore client instance

After you obtain the AccessKey ID and AccessKey secret, you can perform the following operation to initialize a Tablestore client instance:

Create a client

When you use Tablestore SDKs, you must create a client and then call the operations in the client to access Tablestore. The operations in the client provide the same functions as the RESTful API provided by Tablestore.

Tablestore SDKs offer two client types: SyncClient and AsyncClient. SyncClient is designed for synchronous operations and AsyncClient is for asynchronous operations. After a synchronous operation is called, the service request succeeds. You can call synchronous operations to learn more about the various features of Tablestore. Compared with synchronous operations, asynchronous operations provide greater flexibility. If you require high performance, you can choose between the use of asynchronous operations and multithreading.

> **Note** Both SyncClient and AsyncClient are thread-safe and can internally manage threads and connection resources. You do not need to create a client for each thread or request. Instead, create a global client.

Examples

- The following code provides an example on how to use the default configurations to create a SyncClient:

```
        final String endPoint = "";
        final String accessKeyId = "";
        final String accessKeySecret = "";
        final String instanceName = "";
        SyncClient client = new SyncClient(endPoint, accessKeyId, accessKeySecret, instan
ceName);
```

- The following code provides an example on how to use the custom configurations to create a SyncClient:

```
        // ClientConfiguration provides multiple configuration items. Only the most commo
nly used items are listed.
        ClientConfiguration clientConfiguration = new ClientConfiguration();
        // Set the timeout period for establishing a connection.
        clientConfiguration.setConnectionTimeoutInMillisecond(5000);
        // Set the timeout period for the socket connection.
        clientConfiguration.setSocketTimeoutInMillisecond(5000);
        // Configure a retry policy. If you do not configure policies, the default retry
policy is used.
        clientConfiguration.setRetryStrategy(new AlwaysRetryStrategy());
        SyncClient client = new SyncClient(endPoint, accessId, accessKey, instanceName, c
lientConfiguration);
```

HTTPS

Upgrade to Java 7 for HTTPS access.

Multithreading

- Multithreading is supported.

- We recommend that you use the same OTSClient object to perform multithreading tasks.

7.1.2.1.1.4. Use Tablestore SDK for Java

Table-level operations

Tablestore SDK for Java provides the following table-level operations: CreateTable, ListTable, DeleteTable, UpdateTable, and DescribeTable.

CreateTable

When you create a table in Tablestore, you must specify TableMeta and TableOptions. You can also set ReservedThroughput.

> **Note** After the table is created, Tablestore loads partitions of the table to a specified node. And you can read data from or write data to the table within a few seconds. An exception may occur if you immediately attempt to read from or write to the table after you create the table.

- TableMeta

  TableMeta includes the name and primary key schema of the table.

Parameter	Description
TableName	The name of the table.
List	The definition of the primary key. ○ The primary key of a table can contain one to four primary key columns. Primary key columns are sorted in the order in which they are added. For example, PRIMARY KEY (A, B, C) and PRIMARY KEY (A, C, B) have different primary key schemas. Tablestore sorts rows based on the values of all primary key columns. ○ The first primary key column serves as the partition key. Data with the same partition key value is stored in the same partition. Therefore, we recommend that you assign no more than 10 GB of data with the same partition key value. Otherwise, individual partitions are too large and cannot be split. We recommend that you distribute requests in an even manner to read and write data to different partition keys for load balancing. ○ Attribute columns are optional. Different rows in Tablestore can have different data columns. The names of attribute columns can be specified when data is written.

- TableOptions

Parameter	Description

Parameter	Description
TTL	The time to live, which indicates the validity period of data. ○ The system determines whether data expires based on the timestamp, current time, and timeToLive parameters. Data expires and then is deleted if the values of the parameters meet the following formula: `current time - timestamp > timeToLive`. ○ When you create a table, you can set TTL to -1 if you expect that data never expires. After the table is created, you can call the UpdateTable operation to dynamically modify the TTL value. ○ When you write data configured with TTL, ensure that you specify a valid timestamp. We recommend that you set MaxTimeDeviation when you specify the timestamp. ○ Unit: seconds.
MaxTimeDeviation	The maximum offset between the timestamp of written data and the current system time. ○ By default, the system generates a timestamp for new data. The system checks whether data expires based on the timestamp. You can specify the timestamp of written data. When the offset between the timestamp of written data and the current system time is greater than the specified TTL, the written data immediately expires. To solve this problem, set MaxTimeDeviation. ○ When you create a table, Tablestore uses the default value of 86400 if you do not specify a max version offset. After the table is created, you can call the UpdateTable operation to dynamically modify the MaxTimeDeviation value. ○ Unit: seconds.
MaxVersions	The maximum number of versions that can be retained for data in attribute columns of the table. When the number of versions of data in attribute columns exceeds the MaxVersions value, Tablestore automatically deletes data of earlier versions. When you create a table, you can customize the maximum number of versions that can be retained for the data in an attribute column. After the table is created, you can call the UpdateTable operation to dynamically modify the MaxVersions value for the table.

- ReservedThroughput: the reserved read/write throughput configurations of the table.

  You can set the reserved read and write throughput only to 0 for capacity instances. Reserved throughput does not apply to these instances.

Examples

```
private static void createTable(SyncClient client) {
        TableMeta tableMeta = new TableMeta(TABLE_NAME);
        tableMeta.addPrimaryKeyColumn(new PrimaryKeySchema(PRIMARY_KEY_NAME, PrimaryKeyType
.STRING)); // Specify a primary key column for the base table.
        int timeToLive = -1; // Specify the validity period of data in seconds. A value of
-1 indicates that the data never expires. You must specify -1 as the TTL value when a table
has one or more index tables.
        int maxVersions = 1; // Specify the maximum number of versions that can be retained
. You must specify 1 as the maxVersions value when a table has one or more index tables.
        TableOptions tableOptions = new TableOptions(timeToLive, maxVersions);
        CreateTableRequest request = new CreateTableRequest(tableMeta, tableOptions);
        request.setReservedThroughput(new ReservedThroughput(new CapacityUnit(0, 0))); // S
et the reserved read/write throughout. You can set the value only to 0 for capacity instanc
es. However, you can set a non-zero value for high-performance instances.
        client.createTable(request);
    }
```

ListTable

You can call this operation to query the names of all tables created in the current instance.

Examples

The following code provides an example on how to query the names of all tables in an instance:

```
private static void listTable(SyncClient client) {
    ListTableResponse response = client.listTable();
    System.out.println("List of tables:");
    for (String tableName : response.getTableNames()) {
        System.out.println(tableName);
    }
}
```

UpdateTable

You can call this operation to update the reserved read/write throughput and table options of a table.

For more information about the ReservedThroughput and TableOptions parameters, see the CreateTable section. The minimum interval between attempts to modify the value of ReservedThroughput is one minute.

Examples

The following code provides an example on how to update the timeToLive and MaxVersions values of a table:

```
private static void updateTable(SyncClient client) {
    int timeToLive = -1;
    int maxVersions = 5; // Update the value of MaxVersions to 5.
    TableOptions tableOptions = new TableOptions(timeToLive, maxVersions);
    UpdateTableRequest request = new UpdateTableRequest(TABLE_NAME);
    request.setTableOptionsForUpdate(tableOptions);
    client.updateTable(request);
}
```

DescribeTable

You can call this operation to query the structure information, table option configurations, and reserved read/write throughput settings of a table.

For more information about the TableMeta and TableOptions parameters, see the CreateTable section. Besides the reserved read/write throughput, ReservedThroughputDetails shows the most recent time when the throughput was increased or decreased.

Examples

The following code provides an example on how to query the description of a table:

```
private static void describeTable(SyncClient client) {
    DescribeTableRequest request = new DescribeTableRequest(TABLE_NAME);
    DescribeTableResponse response = client.describeTable(request);
    TableMeta tableMeta = response.getTableMeta();
    System.out.println("The name of the table:" + tableMeta.getTableName());
    System.out.println("The primary key of the table:");
    for (PrimaryKeySchema primaryKeySchema : tableMeta.getPrimaryKeyList()) {
        System.out.println(primaryKeySchema);
    }
    TableOptions tableOptions = response.getTableOptions();
    System.out.println("TTL of the table:" + tableOptions.getTimeToLive());
    System.out.println("MaxVersions the table:" + tableOptions.getMaxVersions());
    ReservedThroughputDetails reservedThroughputDetails = response.getReservedThroughputDet
ails();
    System.out.println("Reserved read throughput of the table:"
            + reservedThroughputDetails.getCapacityUnit().getReadCapacityUnit());
    System.out.println("Reserved write throughput of the table:"
            + reservedThroughputDetails.getCapacityUnit().getWriteCapacityUnit());
}
```

DeleteTable

You can call this operation to delete a specified table from the current instance.

Examples

The following code provides an example on how to delete a specified table from the current instance:

```
private static void deleteTable(SyncClient client) {
    DeleteTableRequest request = new DeleteTableRequest(TABLE_NAME);
    client.deleteTable(request);
}
```

Single-row operations

Tablestore SDK for Java provides the following single-row operations: PutRow, GetRow, UpdateRow, and DeleteRow.

PutRow

You can call this operation to insert a row of data. If this row already exists, it is overwritten.

When you perform PutRow, you can use conditional update to set conditions for the existence of the row to write or values in certain columns of the existing row. For more information, see Conditional update.

- Example 1

  The following code provides an example on how to write a row that contains 10 attribute columns and write one version of data for each column. The version number (timestamp) is specified by the server.

```
private static void putRow(SyncClient client, String pkValue) {
    // Create the primary key.
    PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString(pk
Value));
    PrimaryKey primaryKey = primaryKeyBuilder.build();
    RowPutChange rowPutChange = new RowPutChange(TABLE_NAME, primaryKey);
    // Add attribute columns.
    for (int i = 0; i < 10; i++) {
        rowPutChange.addColumn(new Column("Col" + i, ColumnValue.fromLong(i)));
    }
    client.putRow(new PutRowRequest(rowPutChange));
}
```

- Example 2

  The following code provides an example on how to write a row that contains 10 attribute columns and write three versions of data for each column. The version number (timestamp) is specified by the client.

```
private static void putRow(SyncClient client, String pkValue) {
    // Create the primary key.
    PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString(pk
Value));
    PrimaryKey primaryKey = primaryKeyBuilder.build();
    RowPutChange rowPutChange = new RowPutChange(TABLE_NAME, primaryKey);
    // Add attribute columns.
    long ts = System.currentTimeMillis();
    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 3; j++) {
            rowPutChange.addColumn(new Column("Col" + i, ColumnValue.fromLong(j), ts + j)
);
        }
    }
    client.putRow(new PutRowRequest(rowPutChange));
}
```

- Example 3

  The following code provides an example on how to write data when the target row does not exist:

```
private static void putRow(SyncClient client, String pkValue) {
    // Create the primary key.
    PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString(pk
Value));
    PrimaryKey primaryKey = primaryKeyBuilder.build();
    RowPutChange rowPutChange = new RowPutChange(TABLE_NAME, primaryKey);
    // Set a condition to specify that the target row does not exist.
    rowPutChange.setCondition(new Condition(RowExistenceExpectation.EXPECT_NOT_EXIST));
    // Add attribute columns.
    long ts = System.currentTimeMillis();
    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 3; j++) {
            rowPutChange.addColumn(new Column("Col" + i, ColumnValue.fromLong(j), ts + j)
);
        }
    }
    client.putRow(new PutRowRequest(rowPutChange));
}
```

- Example 4

  The following code provides an example on how to write data when the target row exists and the value of Col0 is greater than 100:

```
private static void putRow(SyncClient client, String pkValue) {
    // Create the primary key.
    PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString(pk
Value));
    PrimaryKey primaryKey = primaryKeyBuilder.build();
    RowPutChange rowPutChange = new RowPutChange(TABLE_NAME, primaryKey);
    // Set a condition to specify that the target row exists and the value in Col0 of the
target row is greater than 100.
    Condition condition = new Condition(RowExistenceExpectation.EXPECT_EXIST);
    condition.setColumnCondition(new SingleColumnValueCondition("Col0",
            SingleColumnValueCondition.CompareOperator.GREATER_THAN, ColumnValue.fromLong
(100)));
    rowPutChange.setCondition(condition);
    // Add attribute columns.
    long ts = System.currentTimeMillis();
    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 3; j++) {
            rowPutChange.addColumn(new Column("Col" + i, ColumnValue.fromLong(j), ts + j)
);
        }
    }
    client.putRow(new PutRowRequest(rowPutChange));
}
```

GetRow

You can call this operation to read a single row of data. The following table describes the parameter you can use for this operation.

Parameter	Description
PrimaryKey	The primary key of the row to read. This parameter is required.
ColumnsToGet	The set of the columns to read. If you do not set this parameter, all columns are read.
MaxVersions	The maximum number of versions to read. You must set at least one of the following parameters: MaxVersions or TimeRange.
TimeRange	The range of versions to read. You must set at least one of the following parameters: MaxVersions or TimeRange.
Filter	Filters are used by the server to filter the read results based on the specified conditions.

- Example 1

  The following code provides an example on how to read the latest version of data in the columns specified by ColumnsToGet of a row:

```
        private static void getRow(SyncClient client, String pkValue) {
            // Create the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            // Read a row of data.
            SingleRowQueryCriteria criteria = new SingleRowQueryCriteria(TABLE_NAME, prim
aryKey);
            // Set MaxVersions to 1 to read the latest version of data.
            criteria.setMaxVersions(1);
            GetRowResponse getRowResponse = client.getRow(new GetRowRequest(criteria));
            Row row = getRowResponse.getRow();
            System.out.println("Read complete, result: ");
            System.out.println(row);
            // Specify the columns to read.
            criteria.addColumnsToGet("Col0");
            getRowResponse = client.getRow(new GetRowRequest(criteria));
            row = getRowResponse.getRow();
            System.out.println("Read complete, result:");
            System.out.println(row);
        }
```

- Example 2

  The following code provides an example on how to set a filter:

```
        private static void getRow(SyncClient client, String pkValue) {
            // Create the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            // Read a row of data.
            SingleRowQueryCriteria criteria = new SingleRowQueryCriteria(TABLE_NAME, prim
aryKey);
            // Set MaxVersions to 1 to read the latest version of data.
            criteria.setMaxVersions(1);
            // Set the filter so that this row is returned when the value in Col0 is 0.
            SingleColumnValueFilter singleColumnValueFilter = new SingleColumnValueFilter
("Col0",
                    SingleColumnValueFilter.CompareOperator.EQUAL, ColumnValue.fromLong(0
));
            // If Col0 does not exist, the data is not returned.
            singleColumnValueFilter.setPassIfMissing(false);
            criteria.setFilter(singleColumnValueFilter);
            GetRowResponse getRowResponse = client.getRow(new GetRowRequest(criteria));
            Row row = getRowResponse.getRow();
            System.out.println("Read complete, result: ");
            System.out.println(row);
        }
```

UpdateRow

You can call this operation to update a single row of data. If the target row does not exist, a new row is added.

The update operations include writing a column, deleting a column, and deleting a version of data in a column.

When you perform UpdateRow, you can use conditional update to configure conditions for the existence of the row to update or values in certain columns of the existing row. For more information, see Conditional update.

- Example 1

  The following code provides an example on how to update several columns, delete the specified version of data in a column, and delete the specified column:

```
        private static void updateRow(SyncClient client, String pkValue) {
            // Construct the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            RowUpdateChange rowUpdateChange = new RowUpdateChange(TABLE_NAME, primaryKey)
;
            // Update columns.
            for (int i = 0; i < 10; i++) {
                rowUpdateChange.put(new Column("Col" + i, ColumnValue.fromLong(i)));
            }
            // Delete a specified version of data in the specified column.
            rowUpdateChange.deleteColumn("Col10", 1465373223000L);
            // Delete the specified column.
            rowUpdateChange.deleteColumns("Col11");
            client.updateRow(new UpdateRowRequest(rowUpdateChange));
        }
```

- Example 2

  The following code provides an example on how to configure update conditions:

```
        private static void updateRow(SyncClient client, String pkValue) {
            // Create the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            RowUpdateChange rowUpdateChange = new RowUpdateChange(TABLE_NAME, primaryKey)
;
            // Update data when the specified row exists and the value in Col0 is greater
than 100.
            Condition condition = new Condition(RowExistenceExpectation.EXPECT_EXIST);
            condition.setColumnCondition(new SingleColumnValueCondition("Col0",
                    SingleColumnValueCondition.CompareOperator.GREATER_THAN, ColumnValue.
fromLong(100)));
            rowUpdateChange.setCondition(condition);
            // Update columns.
            for (int i = 0; i < 10; i++) {
                rowUpdateChange.put(new Column("Col" + i, ColumnValue.fromLong(i)));
            }
            // Delete a specified version of data in the specified column.
            rowUpdateChange.deleteColumn("Col10", 1465373223000L);
            // Delete the specified column.
            rowUpdateChange.deleteColumns("Col11");
            client.updateRow(new UpdateRowRequest(rowUpdateChange));
        }
```

DeleteRow

You can call this operation to delete a row.

When you perform DeleteRow, you can use conditional update to configure conditions for the existence of the row to delete or values in certain columns of the existing row. For more information, see Conditional update.

- Example 1

  The following code provides an example on how to delete a row:

```
        private static void deleteRow(SyncClient client, String pkValue) {
            // Create the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            RowDeleteChange rowDeleteChange = new RowDeleteChange(TABLE_NAME, primaryKey)
;
            client.deleteRow(new DeleteRowRequest(rowDeleteChange));
        }
```

- Example 2

  The following code provides an example on how to set deletion conditions:

```
        private static void deleteRow(SyncClient client, String pkValue) {
            // Create the primary key.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuild
er();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromS
tring(pkValue));
            PrimaryKey primaryKey = primaryKeyBuilder.build();
            RowDeleteChange rowDeleteChange = new RowDeleteChange(TABLE_NAME, primaryKey)
;
            // Delete data when the specified row exists and the value in Col0 exceeds 10
0.
            Condition condition = new Condition(RowExistenceExpectation.EXPECT_EXIST);
            condition.setColumnCondition(new SingleColumnValueCondition("Col0",
                    SingleColumnValueCondition.CompareOperator.GREATER_THAN, ColumnValue.
fromLong(100)));
            rowDeleteChange.setCondition(condition);
            client.deleteRow(new DeleteRowRequest(rowDeleteChange));
        }
```

Multi-row operations

Tablestore SDK for Java provides multi-row operations such as BatchGetRow, BatchWriteRow, GetRange, and createRangeIterator.

BatchGetRow

You can call this operation to read data from multiple rows by sending a single request. The parameters are the same as those of the GetRow operation. Note that BatchGetRow uses the same parameter configurations for all rows. For example, if ColumnsToGet is set to colA, only the value of colA is read for all the rows.

Similar to the use of the BatchWriteRow operation, you must check the response when you use the BatchGetRow operation. If the operation fails for some rows, an exception may not occur, but information about the failed rows is stored in BatchGetRowResponse. You can use the BatchGetRowResponse#getFailedRows method to query information about the failed rows. Use the BatchGetRowResponse#isAllSucceed method to determine whether all rows is obtained.

Examples

The following code provides an example on how to read 10 rows of data, and configure the version conditions, columns to read, and filters:

```
        private static void batchGetRow(SyncClient client) {
            MultiRowQueryCriteria multiRowQueryCriteria = new MultiRowQueryCriteria(TABLE_NAME);
            // Add 10 rows to read.
            for (int i = 0; i < 10; i++) {
                PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
                primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString("pk" + i));
                PrimaryKey primaryKey = primaryKeyBuilder.build();
                multiRowQueryCriteria.addRow(primaryKey);
            }
            // Add conditions.
            multiRowQueryCriteria.setMaxVersions(1);
            multiRowQueryCriteria.addColumnsToGet("Col0");
            multiRowQueryCriteria.addColumnsToGet("Col1");
            SingleColumnValueFilter singleColumnValueFilter = new SingleColumnValueFilter("Col0",
                    SingleColumnValueFilter.CompareOperator.EQUAL, ColumnValue.fromLong(0));
            singleColumnValueFilter.setPassIfMissing(false);
            multiRowQueryCriteria.setFilter(singleColumnValueFilter);
            BatchGetRowRequest batchGetRowRequest = new BatchGetRowRequest();
            // BatchGetRow allows you to read data from multiple tables. A single multiRowQueryCriteria corresponds to a query condition for one table. You can add multiple multiRowQueryCriteria conditions to read data from multiple tables.
            batchGetRowRequest.addMultiRowQueryCriteria(multiRowQueryCriteria);
            BatchGetRowResponse batchGetRowResponse = client.batchGetRow(batchGetRowRequest);
            System.out.println("Were all successful:" + batchGetRowResponse.isAllSucceed());
            if (!batchGetRowResponse.isAllSucceed()) {
                for (BatchGetRowResponse.RowResult rowResult : batchGetRowResponse.getFailedRows()) {
                    System.out.println("Failed rows:" + batchGetRowRequest.getPrimaryKey(rowResult.getTableName(), rowResult.getIndex()));
                    System.out.println("Cause of failure:" + rowResult.getError());
                }
                /**
                 * You can use the createRequestForRetry method to construct another request to retry failed rows. Only the retry request is constructed here.
                 * We recommend that you use the custom retry policy in Tablestore SDK for Java as the retry method. This feature allows you to retry failed rows after batch operations. After you set the retry policy, you do not need to add retry code when you call the retry operation.
                 */
                BatchGetRowRequest retryRequest = batchGetRowRequest.createRequestForRetry(batchGetRowResponse.getFailedRows());
            }
        }
```

BatchWriteRow

You can call this operation to write data to multiple rows by sending a single request. The write operations include PutRow, UpdateRow, and DeleteRow. This operation also allows you to write data to multiple tables at a time.

The process to create a BatchWriteRow operation is the same as that to create a PutRow, UpdateRow, or DeleteRow operation. You can also set update conditions.

When you call the BatchWriteRow operation, you must check the response. When multiple rows are written, some rows may fail to be written. If the operation fails for some rows, an exception may not occur, but information about the index and error messages of the failed rows is stored in BatchWriteRowResponse. You can use the isAllSucceed method in BatchWriteRowResponse to determine whether all rows are written. We recommend that you check the response in case of failed operations. In some situations, exceptions may occur when you call the BatchWriteRow operation. For example, if the server detects incorrect parameters during some operations, a parameter exception may occur when none of the operations are completed for the request.

Examples

The following code provides an example of how to send a single BatchWriteRow request, which includes two PutRow operations, one UpdateRow operation, and one DeleteRow operation.

```
        private static void batchWriteRow(SyncClient client) {
            BatchWriteRowRequest batchWriteRowRequest = new BatchWriteRowRequest();
            // Construct rowPutChange1.
            PrimaryKeyBuilder pk1Builder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            pk1Builder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString("pk
1"));
            RowPutChange rowPutChange1 = new RowPutChange(TABLE_NAME, pk1Builder.build());
            // Add columns.
            for (int i = 0; i < 10; i++) {
                rowPutChange1.addColumn(new Column("Col" + i, ColumnValue.fromLong(i)));
            }
            // Add rowPutChange1 to the batch operation.
            batchWriteRowRequest.addRowChange(rowPutChange1);
            // Construct rowPutChange2.
            PrimaryKeyBuilder pk2Builder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            pk2Builder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString("pk
2"));
            RowPutChange rowPutChange2 = new RowPutChange(TABLE_NAME, pk2Builder.build());
            // Add columns.
            for (int i = 0; i < 10; i++) {
                rowPutChange2.addColumn(new Column("Col" + i, ColumnValue.fromLong(i)));
            }
            // Add rowPutChange2 to the batch operation.
            batchWriteRowRequest.addRowChange(rowPutChange2);
            // Construct rowUpdateChange.
            PrimaryKeyBuilder pk3Builder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            pk3Builder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString("pk
3"));
            RowUpdateChange rowUpdateChange = new RowUpdateChange(TABLE_NAME, pk3Builder.bu
ild());
            // Add columns.
            for (int i = 0; i < 10; i++) {
                rowUpdateChange.put(new Column("Col" + i, ColumnValue.fromLong(i)));
```

```
            }
            // Delete the specified column.
            rowUpdateChange.deleteColumns("Col10");
            // Add rowUpdateChange to the batch operation.
            batchWriteRowRequest.addRowChange(rowUpdateChange);
            // Construct rowDeleteChange.
            PrimaryKeyBuilder pk4Builder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            pk4Builder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString("pk
4"));
            RowDeleteChange rowDeleteChange = new RowDeleteChange(TABLE_NAME, pk4Builder.bu
ild());
            // Add rowDeleteChange to the batch operation.
            batchWriteRowRequest.addRowChange(rowDeleteChange);
            BatchWriteRowResponse response = client.batchWriteRow(batchWriteRowRequest);
            System.out.println("Were all successful:" + response.isAllSucceed());
            if (!response.isAllSucceed()) {
                for (BatchWriteRowResponse.RowResult rowResult : response.getFailedRows())
{
                    System.out.println("Failed rows:" + batchWriteRowRequest.getRowChange(r
owResult.getTableName(), rowResult.getIndex()).getPrimaryKey());
                    System.out.println("Cause of failure:" + rowResult.getError());
                }
                /**
                 * You can use the createRequestForRetry method to construct another reques
t to retry failed rows. Only the retry request is constructed here.
                 * We recommend that you use the custom retry policy in Tablestore SDK for
Java as the retry method. This feature allows you to retry failed rows after batch operatio
ns. After you set the retry policy, you do not need to add retry code when you call the ret
ry operation.
                 */
                BatchWriteRowRequest retryRequest = batchWriteRowRequest.createRequestForRe
try(response.getFailedRows());
            }
        }
```

GetRange

You can call this operation to read data within a range. In Tablestore tables, all rows are sorted by primary key. The primary key of a table sequentially consists of all primary key columns. Therefore, do not assume that the rows are sorted based on a certain primary key column.

The GetRange operation allows you to read data in a forward or backward direction within a specified range. You can also specify the number of rows to read. If the range is large and the number of scanned rows or the volume of data exceeds the limit, the scan stops and the read rows and the next primary key are returned. If the rows are not all read, you can initiate a request to start from where the last operation left off and read the remaining rows based on the next primary key returned by the previous operation.

The following table describes the parameters of GetRange requests.

Parameter	Description
Direction	The enumeration type. Valid values: FORWARD and BACKWARD.
InclusiveStartPrimaryKey	The primary key of the row from which the range read starts. The row that contains the start primary key is within the valid range to read. If you set Direction to **BACKWARD**, the value of the start primary key must be greater than that of the end primary key.
ExclusiveEndPrimaryKey	The primary key of the row at which the range read ends. The row that contains the end primary key is not within the valid range to read. If you set Direction to **BACKWARD**, the value of the start primary key must be greater than that of the end primary key.
Limit	The maximum number of rows to return for this request.
ColumnsToGet	The set of columns to read. If you do not specify this parameter, all columns are read.
MaxVersions	The maximum number of versions to read. You must set at least one of the following parameters: MaxVersions or TimeRange.
TimeRange	The range of versions to read. You must set at least one of the following parameters: MaxVersions or TimeRange.
Filter	Filters are used by the server to filter the read results based on the specified conditions.

Examples

The following code provides an example on how to read data within a specified range in forward order and return NextStartPrimaryKey. If the value of NextStartPrimaryKey is null, all data within the range is read.

```
        private static void getRange(SyncClient client, String startPkValue, String endPkVal
ue) {
            RangeRowQueryCriteria rangeRowQueryCriteria = new RangeRowQueryCriteria(TABLE_N
AME);
            // Specify the primary key to start from.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder
();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromStr
ing(startPkValue));
            rangeRowQueryCriteria.setInclusiveStartPrimaryKey(primaryKeyBuilder.build());
            // Specify the primary key to end with.
            primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromStr
ing(endPkValue));
            rangeRowQueryCriteria.setExclusiveEndPrimaryKey(primaryKeyBuilder.build());
            rangeRowQueryCriteria.setMaxVersions(1);
            System.out.println("GetRange result:");
            while (true) {
                GetRangeResponse getRangeResponse = client.getRange(new GetRangeRequest(ran
geRowQueryCriteria));
                for (Row row : getRangeResponse.getRows()) {
                    System.out.println(row);
                }
                // If the NextStartPrimaryKey value is not null, continue the read operatio
n.
                if (getRangeResponse.getNextStartPrimaryKey() != null) {
                    rangeRowQueryCriteria.setInclusiveStartPrimaryKey(getRangeResponse.getN
extStartPrimaryKey());
                } else {
                    break;
                }
            }
        }
```

createRangeIterator

You can call this operation to read data by iteration.

Examples

```
        private static void getRangeByIterator(SyncClient client, String startPkValue, Stri
ng endPkValue) {
            RangeIteratorParameter rangeIteratorParameter = new RangeIteratorParameter(TABL
E_NAME);
            // Specify the primary key to start from.
            PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder
();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromStr
ing(startPkValue));
            rangeIteratorParameter.setInclusiveStartPrimaryKey(primaryKeyBuilder.build());
            // Specify the primary key to end with.
            primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
            primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromStr
ing(endPkValue));
            rangeIteratorParameter.setExclusiveEndPrimaryKey(primaryKeyBuilder.build());
            rangeIteratorParameter.setMaxVersions(1);
            Iterator<Row> iterator = client.createRangeIterator(rangeIteratorParameter);
            System.out.println("Results obtained when Iterator is used to implement GetRang
e:");
            while (iterator.hasNext()) {
                Row row = iterator.next();
                System.out.println(row);
            }
        }
```

Auto-increment function of the primary key column

This topic describes how to create an auto-increment primary key column. An auto-increment primary key column cannot be the partition key. If you write data to a table that contains an auto-increment primary key column, you do not need to specify a value for the auto-increment primary key column because Tablestore generates a value for the auto-increment primary key column. The generated value for the auto-increment primary key column is unique, and all values in auto-increment primary key columns increase sequentially in a partition. This feature applies to system design scenarios that require auto-increment primary key columns, such as item IDs on e-commerce websites, user IDs of large websites, post IDs in forums, and message IDs in chat tools.

> **Note** Tablestore SDK for Java V4.2.0 and later support auto-increment function of the primary key column.

Features

Auto-increment function of the primary key column have the following features:

- The values in auto-increment primary key columns are unique and increase sequentially but not always continuously in a partition.
- The data type of the value in an auto-increment primary key column is 64-bit signed long integer.
- You can create an auto-increment primary key column for a table. Tables that contain and do not contain auto-increment primary key columns can be in the same instance.

> **Note** Auto-increment function of the primary key column do not affect the rule of conditional update.

Limits

Auto-increment function of the primary key column has the following limits:

- You can create at most one auto-increment primary key column for a table. An auto-increment primary key column cannot be the partition key.
- You can create an auto-increment primary key column only when you create a table. You cannot create an auto-increment primary key column for an existing table.
- An auto-increment primary key column can only be an integer column. The data type of the generated value for an auto-increment primary key column is 64-bit signed long integer.
- An auto-increment column cannot be an attribute column.

API operations

The following table lists the operations for auto-increment function of the primary key column.

API operation	Description
CreateTable	When you create a table, you cannot set the partition key to be an auto-increment primary key column. If you set the partition key to be an auto-increment primary key column, values in the column cannot be generated automatically.
UpdateTable	After a table is created, you cannot use the UpdateTable operation to change a primary key column to an auto-increment primary key column.
PutRow	When you write data to a table, you do not need to specify a value for the auto-increment primary key column. Tablestore generates a value for the auto-increment primary key column. You can set ReturnType to RT_PK to obtain a complete primary key value and use the value in GetRow to query data.
UpdateRow	
BatchWriteRow	
GetRow	You must use a complete primary key value when you use GetRow. To obtain a complete primary key value, you can set ReturnType to RT_PK in PutRow, UpdateRow, or BatchWriteRow.
BatchGetRow	

Examples

The use of auto-increment primary key columns involve the CreateTable, PutRow, UpdateRow, and BatchWriteRow operations.

1. Create a table

   To create an auto-increment primary key column when you create a table, you must set AUTO_INCREMENT as the attribute of the primary key column.

```
private static void createTable(SyncClient client) {
        TableMeta tableMeta = new TableMeta("table_name");
        // Create the first primary key column, which is also the partition key.
        tableMeta.addPrimaryKeyColumn(new PrimaryKeySchema("PK_1", PrimaryKeyType.STRIN
G));
        // Create the second primary key column, and set it to be an auto-increment col
umn. The type is set to integer, and the attribute is set to AUTO_INCREMENT.
        tableMeta.addPrimaryKeyColumn(new PrimaryKeySchema("PK_2", PrimaryKeyType.INTEG
ER, PrimaryKeyOption.AUTO_INCREMENT));
        int timeToLive = -1;  // Specify that data never expires.
        int maxVersions = 1;  // Specify that only one version is saved.
        TableOptions tableOptions = new TableOptions(timeToLive, maxVersions);
        CreateTableRequest request = new CreateTableRequest(tableMeta, tableOptions);
        client.createTable(request);
    }
```

2. Write data

   When you write data to a table, you do not need to specify a value for the auto-increment primary key column. Instead, you can set the value in the auto-increment primary key column to AUTO_INCREMENT.

```
    private static void putRow(SyncClient client, String receive_id) {
        // Create the primary key.
        PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder
();
        // Specify the value in the first primary key column to the first four digits o
f md5(receive_id).
        primaryKeyBuilder.addPrimaryKeyColumn("PK_1", PrimaryKeyValue.fromString("Hangz
hou");
        // Specify the value in the second primary key column to AUTO_INCREMENT. The se
cond primary key column is an auto-increment primary key column, and you do not need to
specify a value for it. Tablestore generates a value for the auto-increment primary key
column.
        primaryKeyBuilder.addPrimaryKeyColumn("PK_2", PrimaryKeyValue.AUTO_INCREMENT);
        PrimaryKey primaryKey = primaryKeyBuilder.build();
        RowPutChange rowPutChange = new RowPutChange("table_name", primaryKey);
        // Set ReturnType to RT_PK to include the primary key value in the returned res
ult. If ReturnType is not set, no result is returned by default.
        rowPutChange.setReturnType(ReturnType.RT_PK);
        // Add attribute columns.
        rowPutChange.addColumn(new Column("content", ColumnValue.fromString(content)));
        // Write data to the table.
        PutRowResponse response = client.putRow(new PutRowRequest(rowPutChange));
        // Display the returned primary key value.
        Row returnRow = response.getRow();
        if (returnRow != null) {
            System.out.println("PrimaryKey:" + returnRow.getPrimaryKey().toString());
        }
        // Display the consumed capacity units (CUs).
        CapacityUnit  cu = response.getConsumedCapacity().getCapacityUnit();
        System.out.println("Read CapacityUnit:" + cu.getReadCapacityUnit());
        System.out.println("Write CapacityUnit:" + cu.getWriteCapacityUnit());
    }
```

Conditional update

If you use conditional update, data in the table can be updated only when the conditions are met. If the conditions are not met, the update fails.

Conditional update supports arithmetic operations including =, !, =, >, >=, <, and <= and logic operations including NOT, AND, and OR. You can use a combination of up to 10 conditions in an update operation. You can use conditional update in the PutRow, UpdateRow, DeleteRow, and BatchWriteRow operations.

Conditional updates can be used to implement optimistic locking. When you update a row, the value of the specified column is obtained. For example, the value in Column A is 1. Obtain the value in Column A and set a condition that **the value in Column A is 1**. Update **the value in Column A to 2**. If Column A of the row is updated by other clients, the update fails.

Column-based judgment conditions include column-based conditions and the row existence condition.

Column-based judgment condition	Description
Column-based condition	Column-based conditions support SingleColumnValueCondition and CompositeColumnValueCondition, which are used to perform the condition-based judgment based on the values of one or more columns. Column-based conditions are similar to the conditions used by Tablestore filters.
Row existence condition	When you update a table, the system checks the row existence condition. If the row existence condition is not met, an error occurs during the update. The row existence condition is classified into the following types: • IGNORE • EXPECT_EXIST • EXPECT_NOT_EXIST For more information, see Row existence condition update rules.

Row existence condition update rules

Note BatchWriteRow is a set of multiple PutRow, UpdateRow, and DeleteRow operations. when you manage data in the table by using the BatchWriteRow operation, see the update rules of the corresponding operation based on the operation type.

API operations	IGNORE	EXPECT_EXIST	EXPECT_NOT_EXIST
PutRow: The row exists.	Fail	Succeed	Fail
PutRow: The row does not exist.	Succeed	Fail	Fail
UpdateRow: The row exists.	Fail	Succeed	Fail
UpdateRow: The row does not exist.	Succeed	Fail	Fail

API operations	IGNORE	EXPECT_EXIST	EXPECT_NOT_EXIST
DeleteRow: The row exists.	Succeed	Succeed	Fail
DeleteRow: The row does not exist.	Fail	Fail	Fail

Examples

The following code provides examples on how to use column-based judgment conditions and implement optimistic locking:

- Construct a SingleColumnValueCondition.

```
 // Set the condition: Col0==0.
 SingleColumnValueCondition singleColumnValueCondition = new SingleColumnValueCondition("
Col0",
         SingleColumnValueCondition.CompareOperator.EQUAL, ColumnValue.fromLong(0));
 // If Col0 does not exist, the condition is not met.
 singleColumnValueCondition.setPassIfMissing(false);
 // Only check the latest version.
 singleColumnValueCondition.setLatestVersionsOnly(true);
```

- Construct a CompositeColumnValueCondition.

```
 // Set the condition composite1: (Col0 = 0) AND (Col1 > 100).
 CompositeColumnValueCondition composite1 = new CompositeColumnValueCondition(CompositeCo
lumnValueCondition.LogicOperator.AND);
 SingleColumnValueCondition single1 = new SingleColumnValueCondition("Col0",
         SingleColumnValueCondition.CompareOperator.EQUAL, ColumnValue.fromLong(0));
 SingleColumnValueCondition single2 = new SingleColumnValueCondition("Col1",
         SingleColumnValueCondition.CompareOperator.GREATER_THAN, ColumnValue.fromLong(10
0));
 composite1.addCondition(single1);
 composite1.addCondition(single2);
 // Set the condition composite2: ( (Col0 == 0) AND (Col1 > 100) ) OR (Col2 <= 10).
 CompositeColumnValueCondition composite2 = new CompositeColumnValueCondition(CompositeCo
lumnValueCondition.LogicOperator.OR);
 SingleColumnValueCondition single3 = new SingleColumnValueCondition("Col2",
         SingleColumnValueCondition.CompareOperator.LESS_EQUAL, ColumnValue.fromLong(10))
;
 composite2.addCondition(composite1);
 composite2.addCondition(single3);
```

- The following code provides an example of how to implement optimistic locking by incrementing the value of a column:

```
 private static void updateRowWithCondition(SyncClient client, String pkValue) {
     // Create the primary key.
     PrimaryKeyBuilder primaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
     primaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME, PrimaryKeyValue.fromString(p
kValue));
     PrimaryKey primaryKey = primaryKeyBuilder.build();
     // Read a row of data.
     SingleRowQueryCriteria criteria = new SingleRowQueryCriteria(TABLE_NAME, primaryKey)
;
     criteria.setMaxVersions(1);
     GetRowResponse getRowResponse = client.getRow(new GetRowRequest(criteria));
     Row row = getRowResponse.getRow();
     long col0Value = row.getLatestColumn("Col0").getValue().asLong();
     // Configure the conditional update to increment the value of Col0 by 1.
     RowUpdateChange rowUpdateChange = new RowUpdateChange(TABLE_NAME, primaryKey);
     Condition condition = new Condition(RowExistenceExpectation.EXPECT_EXIST);
     ColumnCondition columnCondition = new SingleColumnValueCondition("Col0", SingleColum
nValueCondition.CompareOperator.EQUAL, ColumnValue.fromLong(col0Value));
     condition.setColumnCondition(columnCondition);
     rowUpdateChange.setCondition(condition);
     rowUpdateChange.put(new Column("Col0", ColumnValue.fromLong(col0Value + 1)));
     try {
         client.updateRow(new UpdateRowRequest(rowUpdateChange));
     } catch (TableStoreException ex) {
         System.out.println(ex.toString());
     }
 }
```

Filters

Tablestore filters are used to filter the query results on the server side. The server returns only the rows or columns that match the filter conditions. Filters can be used for GetRow, BatchGetRow, and GetRange operations.

Tablestore supports only SingleColumnValueFilter and CompositeColumnValueFilter, which are used to determine whether to filter out a row based on reference column values. SingleColumnValueFilter can be used to determine whether to filter out of a row based on a single reference column value. CompositeColumnValueFilter can be used to determine whether to filter out of a row based on the combination of multiple reference column values.

Note that filters are used to filter the read data. Therefore, the reference columns used by SingleColumnValueFilter or CompositeColumnValueFilter must be included in the read data.

If the data to read does not contain the reference columns, filters cannot obtain the values in the reference columns.

Examples

- The following code provides an example on how to construct a SingleColumnValueFilter:

```
        // Set the filter so that when the value in Col0 is 0, the row is returned.
        SingleColumnValueFilter singleColumnValueFilter = new SingleColumnValueFilter("Co
l0",
                SingleColumnValueFilter.CompareOperator.EQUAL, ColumnValue.fromLong(0));
        // If Col0 does not exist, the data is not returned.
        singleColumnValueFilter.setPassIfMissing(false);
        // Only check the latest version.
        singleColumnValueFilter.setLatestVersionsOnly(true);
```

- The following code provides an example on how to construct a CompositeColumnValueFilter:

```
        // Set filters composite1: (Col0 == 0) AND (Col1 > 100).
        CompositeColumnValueFilter composite1 = new CompositeColumnValueFilter(CompositeC
olumnValueFilter.LogicOperator.AND);
        SingleColumnValueFilter single1 = new SingleColumnValueFilter("Col0",
                SingleColumnValueFilter.CompareOperator.EQUAL, ColumnValue.fromLong(0));
        SingleColumnValueFilter single2 = new SingleColumnValueFilter("Col1",
                SingleColumnValueFilter.CompareOperator.GREATER_THAN, ColumnValue.fromLon
g(100));
        composite1.addFilter(single1);
        composite1.addFilter(single2);
        // Set filters composite2: ( (Col0 == 0) AND (Col1 > 100) ) OR (Col2 <= 10).
        CompositeColumnValueFilter composite2 = new CompositeColumnValueFilter(CompositeC
olumnValueFilter.LogicOperator.OR);
        SingleColumnValueFilter single3 = new SingleColumnValueFilter("Col2",
                SingleColumnValueFilter.CompareOperator.LESS_EQUAL, ColumnValue.fromLong(
10));
        composite2.addFilter(composite1);
        composite2.addFilter(single3);
```

Global secondary indexes

This topic describes how to create, use, and delete a global secondary index.

Create a global secondary index

You can create a global secondary index when you create a table. You can also create a global secondary index for an existing table.

- Create a global secondary index when you create a table

```
   private static void createTable(SyncClient client) {
        TableMeta tableMeta = new TableMeta(TABLE_NAME);
        tableMeta.addPrimaryKeyColumn(new PrimaryKeySchema(PRIMARY_KEY_NAME_1, PrimaryKey
Type.STRING)); // Add a primary key column to the table.
        tableMeta.addPrimaryKeyColumn(new PrimaryKeySchema(PRIMARY_KEY_NAME_2, PrimaryKey
Type.INTEGER)); // Add a primary key column to the table.
        tableMeta.addDefinedColumn(new DefinedColumnSchema(DEFINED_COL_NAME_1, DefinedCol
umnType.STRING)); // Add a predefined attribute column to the table.
        tableMeta.addDefinedColumn(new DefinedColumnSchema(DEFINED_COL_NAME_2, DefinedCol
umnType.INTEGER)); // Add a predefined attribute column to the table.
        int timeToLive = -1; // Specify the validity period of data in seconds. A value o
f -1 indicates that the data never expires. You must specify -1 as the timeToLive value w
hen a table has one or more index tables.
        int maxVersions = 1; // Specify the maximum number of versions. You must specify
1 as the value when a table has one or more index tables.
        TableOptions tableOptions = new TableOptions(timeToLive, maxVersions);
        ArrayList<IndexMeta> indexMetas = new ArrayList<IndexMeta>();
        IndexMeta indexMeta = new IndexMeta(INDEX_NAME);
        indexMeta.addPrimaryKeyColumn(DEFINED_COL_NAME_1); // Add a primary key column to
the index table.
        indexMeta.addDefinedColumn(DEFINED_COL_NAME_2); // Add an attribute column to the
index table.
        indexMetas.Add(indexMeta);
        CreateTableRequest request = new CreateTableRequest(tableMeta, tableOptions, inde
xMetas); // Create an index table when you create a table.
        client.createTable(request);
    }
```

- Create a global secondary index for an existing table

  Note You can set the IncludeBaseData parameter in CreateIndexRequest to specify whether the index table includes the existing data in the table. When the IncludeBaseData parameter in CreateIndexRequest is set to true, the index table includes the existing data. When the value is false, the index table does not include the existing data.

```
private static void createIndex(SyncClient client) {
    IndexMeta indexMeta = new IndexMeta(INDEX_NAME); // Create an index named Meta.
    indexMeta.addPrimaryKeyColumn(DEFINED_COL_NAME_2); // Specify DEFINED_COL_NAME_2 as t
he first primary key column of the index table.
    indexMeta.addPrimaryKeyColumn(DEFINED_COL_NAME_1); // Specify DEFINED_COL_NAME_1 as t
he second primary key column of the index table.
    CreateIndexRequest request = new CreateIndexRequest(TABLE_NAME, indexMeta, true); //
Add the index to the base table. Specify that the existing data of the base table is incl
uded in the index table.
    CreateIndexRequest request = new CreateIndexRequest(TABLE_NAME, indexMeta, false); //
Add the index to the base table. Specify that the existing data of the base table is not
included in the index table.
    /**If you set IncludeBaseData to true, the existing data of the base table is synchro
nized to the index table. Then you can query all data from the index table. The time used
to synchronize data depends on the size of the existing data in the base table.
    */
    request.setIncludeBaseData(true);
    client.createIndex(request); // Create the index table.
}
```

Query data from a global secondary index

If the index table includes the attribute columns to return, you can query data from the index table. If the index table does not include the attribute columns to return, the base table is queried.

- Query data from the index table when the index table includes the attribute columns to return.

```
private static void scanFromIndex(SyncClient client) {
    RangeRowQueryCriteria rangeRowQueryCriteria = new RangeRowQueryCriteria(INDEX_NAME);
// Specify the index table name.
    // Specify the primary key from which the query starts.
    PrimaryKeyBuilder startPrimaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder(
);
    startPrimaryKeyBuilder.addPrimaryKeyColumn(DEFINED_COL_NAME_1, PrimaryKeyValue.INF_MI
N); // Specify the minimum value for an indexed attribute column.
    startPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_1, PrimaryKeyValue.INF_MI
N); // Specify the minimum value for a primary key column.
    startPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_2, PrimaryKeyValue.INF_MI
N); // Specify the minimum value for a primary key column.
    rangeRowQueryCriteria.setInclusiveStartPrimaryKey(startPrimaryKeyBuilder.build());
    // Specify the primary key at which the query ends.
    PrimaryKeyBuilder endPrimaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    endPrimaryKeyBuilder.addPrimaryKeyColumn(DEFINED_COL_NAME_1, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for an indexed attribute column.
    endPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_1, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for a primary key column.
    endPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_2, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for a primary key column.
    rangeRowQueryCriteria.setExclusiveEndPrimaryKey(endPrimaryKeyBuilder.build());
    rangeRowQueryCriteria.setMaxVersions(1);
    System.out.println("The results returned from an index table:");
    while (true) {
        GetRangeResponse getRangeResponse = client.getRange(new GetRangeRequest(rangeRowQ
ueryCriteria));
        for (Row row : getRangeResponse.getRows()) {
            System.out.println(row);
        }
        // If the nextStartPrimaryKey value is not null, continue to read data.
        if (getRangeResponse.getNextStartPrimaryKey() != null) {
            rangeRowQueryCriteria.setInclusiveStartPrimaryKey(getRangeResponse.getNextSta
rtPrimaryKey());
        } else {
            break;
        }
    }
}
```

- Query data from the base table when the index table does not include the attribute columns to return.

```
private static void scanFromIndex(SyncClient client) {
    RangeRowQueryCriteria rangeRowQueryCriteria = new RangeRowQueryCriteria(INDEX_NAME);
// Specify the index table name.
    // Specify the primary key from which the query starts.
    PrimaryKeyBuilder startPrimaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder(
);
    startPrimaryKeyBuilder.addPrimaryKeyColumn(DEFINED_COL_NAME_1, PrimaryKeyValue.INF_MI
N); // Specify the minimum value for an indexed attribute column.
    startPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_1, PrimaryKeyValue.INF_MI
N); // Specify the minimum value for a primary key column.
    startPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_2, PrimaryKeyValue.INF_MI
```

```
N); // Specify the minimum value for a primary key column.
    rangeRowQueryCriteria.setInclusiveStartPrimaryKey(startPrimaryKeyBuilder.build());
    // Specify the primary key at which the query ends.
    PrimaryKeyBuilder endPrimaryKeyBuilder = PrimaryKeyBuilder.createPrimaryKeyBuilder();
    endPrimaryKeyBuilder.addPrimaryKeyColumn(DEFINED_COL_NAME_1, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for an indexed attribute column.
    endPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_1, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for a primary key column.
    endPrimaryKeyBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME_2, PrimaryKeyValue.INF_MAX)
; // Specify the maximum value for a primary key column.
    rangeRowQueryCriteria.setExclusiveEndPrimaryKey(endPrimaryKeyBuilder.build());
    rangeRowQueryCriteria.setMaxVersions(1);
    while (true) {
        GetRangeResponse getRangeResponse = client.getRange(new GetRangeRequest(rangeRowQ
ueryCriteria));
        for (Row row : getRangeResponse.getRows()) {
            PrimaryKey curIndexPrimaryKey = row.getPrimaryKey();
            PrimaryKeyColumn pk1 = curIndexPrimaryKey.getPrimaryKeyColumn(PRIMARY_KEY_NAM
E1);
            PrimaryKeyColumn pk2 = curIndexPrimaryKey.getPrimaryKeyColumn(PRIMARY_KEY_NAM
E2);
            PrimaryKeyBuilder mainTablePKBuilder = PrimaryKeyBuilder.createPrimaryKeyBuil
der();
            mainTablePKBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME1, pk1.getValue());
            mainTablePKBuilder.addPrimaryKeyColumn(PRIMARY_KEY_NAME2, ke2.getValue());
            PrimaryKey mainTablePK = mainTablePKBuilder.build(); // Construct the primary
key to query the base table based on the primary key of the index table.
            // Query the table.
            SingleRowQueryCriteria criteria = new SingleRowQueryCriteria(TABLE_NAME, main
TablePK);
            criteria.addColumnsToGet(DEFINED_COL_NAME3); // Read the DEFINED_COL_NAME3 at
tribute column from the base table.
            // Set the latest version to read.
            criteria.setMaxVersions(1);
            GetRowResponse getRowResponse = client.getRow(new GetRowRequest(criteria));
            Row mainTableRow = getRowResponse.getRow();
            System.out.println(row);
        }
        // If the nextStartPrimaryKey value is not null, continue to read data.
        if (getRangeResponse.getNextStartPrimaryKey() != null) {
            rangeRowQueryCriteria.setInclusiveStartPrimaryKey(getRangeResponse.getNextSta
rtPrimaryKey());
        } else {
            break;
        }
    }
}
```

Delete a global secondary index

Delete an index table.

```
private static void deleteIndex(SyncClient client) {
    DeleteIndexRequest request = new DeleteIndexRequest(TABLE_NAME, INDEX_NAME); // Specify the name of the index table that you want to delete and the name of the corresponding base table.
    client.deleteIndex(request); // Delete the index table.
}
```

7.1.2.1.1.5. Error handling

This topic describes the error handling methods in Tablestore SDK for Java.

Methods

Tablestore SDK for Python handles errors as exceptions. If an operation fails, an exception is returned.

> **Note** Batch operations such as BatchGetRow and BatchWriteRow can be called only after the system verifies that no exception is returned and that the status of each row is successful.

Exceptions

Tablestore SDK for Java has two types of exceptions: OTSClientError and OTSServiceError. Both are inherited from Exception.

- OTSClientError: an internal SDK exception, such as an invalid parameter value.
- OTSException: a server error parsed from a server error message. OTSServiceError contains the following parameters:
  - getHttpStatus(): an HTTP status code, such as 200 or 404.
  - getErrorCode(): an error type string returned by Tablestore.
  - getRequestId(): the UUID that identifies a request. If you cannot solve the problem, record this request ID and contact Tablestore technical support for help.

7.1.2.1.2. Python SDK

7.1.2.1.2.1. Preface

This topic describes how to use Tablestore SDK for Python. The content in this topic applies to Tablestore SDK for Python V4.x.x.

Prerequisites

An authorized account is created, and an AccessKey pair (AccessKey ID and AccessKey secret) is obtained. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

Download Tablestore SDK for Python

- Download Tablestore SDK for Python by using the SDK package. For more information, see SDK package.
- Download Tablestore SDK for Python by using GitHub. For more information, visit GitHub.

Compatibility

- Tablestore SDK for Python V5.x.x: compatible.
- Tablestore SDK for Python V4.x.x: compatible.
- Tablestore SDK for Python V2.x.x: incompatible. Tablestore SDK for Python V2.x.x supports primary key columns in random order, which are no longer supported in Tablestore SDK for Python V4.0.0 and later. Tablestore SDK for Python V4.x.x and Tablestore SDK for Python V2.x.x are incompatible in the following respects:
  - The package name is changed from ots2 to tablestore.
  - The TableOptions parameter is added for the Client.create_table operation.
  - The type of the primary_key parameter is changed from dict to list for the put_row, get_row, and update_row operations to ensure the sequence of primary keys.
  - The type of the attribute_columns parameter is changed from dict to list for the put_row and update_row operations.
  - The timestamp parameter is added to the attribute_columns parameter for the put_row and update_row operations.
  - The max_version and time_range parameters are added for the get_row and get_range operations. You must specify at least one of max_version and time_range.
  - The return_type parameter is added for the put_row, update_row, and delete_row operations. Only RT_PK is supported to return the primary key value of the current row.
  - The return_row parameter is added for the put_row, update_row, and delete_row operations. If you set return_type to RT_PK in the request, the primary key value of the row is returned in return_row.

Version

Latest version: 5.1.0.

7.1.2.1.2.2. Installation

This topic describes how to install Tablestore SDK for Python.

Preparations

Python 2 or Python 3 is available.

Install Tablestore SDK for Python

- Method 1: Use pip.

  Run the following command to install Tablestore SDK for Python:

  ```
  sudo pip install tablestore
  ```

- Method 2: Use GitHub.

  Ensure that you have installed Git. For more information about how to download Git, visit Git. After Git is installed, run the following command:

  ```
  git clone https://github.com/aliyun/aliyun-tablestore-python-sdk.git
  sudo python setup.py  install
  ```

- Method 3: Use source code.
  i. Download the SDK package.
  ii. Decompress the SDK package, and then run the following command:

```
sudo python setup.py install
```

Verify Tablestore SDK for Python

To check the SDK version in the Python environment, enter python on the command line and then press Enter.

```
>>> import tablestore
>>> tablestore.__version__
'5.1.0'
```

Uninstall Tablestore SDK for Python

Use pip to uninstall Tablestore SDK for Python.

```
sudo pip uninstall tablestore
```

7.1.2.1.2.3. Initialization

OTSClient provides a series of methods for users to manage tables and perform read and write operations on one or more rows.

Obtain an endpoint

An endpoint is the domain name that is used to access a Tablestore instance in a region. To query an endpoint, perform the following operations:

1. Log on to the Tablestore console.
2. Click the instance name to go to the **Instance Management** page.

   On the Instance Details page, you can view the endpoints of the instance in Instance Access URL.

Configure an AccessKey pair

To access Apsara Stack Tablestore, you must have a valid AccessKey pair (AccessKey ID and AccessKey secret) for signature authentication.

After you obtain the AccessKey pair, you can perform the following operation to initialize an OTSClient instance by using an endpoint:

- API operation

```
    // Initialize the TableStoreClient instance.
    // endPoint indicates the endpoint that is used to access the Tablestore instance, wh
ich must start with https://. Example: https://instance.cn-hangzhou.ots.aliyun.com:80.
    // accessKeyId indicates the AccessKey ID that is used to access the Tablestore insta
nce. You can visit the official website or contact an administrator to obtain an AccessKe
y ID.
    // accessKeySecret indicates the AccessKey secret that is used to access the Tablesto
re instance. You can visit the official website or contact an administrator to obtain an
AccessKey secret.
    // instanceName indicates the name of the instance to access. You can create an insta
nce in the Tablestore console or contact an administrator to obtain the name of an existi
ng instance.
func NewClient(endPoint, instanceName, accessKeyId, accessKeySecret string, options ...Cl
ientOption) *TableStoreClient
```

- Examples

```
    client = NewClient("your_instance_endpoint",  "your_instance_name", "your_user_i
d", "your_user_key")
```

HTTPS

- HTTPS is supported in Python 2.0.8 and later.
- OpenSSL 0.9.8j or later is required. We recommend that you use OpenSSL 1.0.2d.
- The Python 2.0.8 release package contains a certifi package that can be installed and used. To update the root certificate, download the latest root certificate from Root Certificate.

7.1.2.1.2.4. Use the SDK

Table-level operations

Tablestore SDK for Python provides the following table-level operations: CreateTable, ListTable, DeleteTable, UpdateTable, and DescribeTable.

CreateTable

You can call this operation to create a table based on the specified table structure.

> **Note**
>
> - After the table is created, it takes several seconds to load the table. During this period, read and write operations on the table may fail. You can use applications to perform operations on the table data only after the table is loaded.
> - You must specify the primary key when you create a table. A primary key contains one to four primary key columns. Each primary key column has a name and a data type.

- API operation

```
       Description: You can call this operation to create a table based on the specified
table schema information.
        table_meta indicates an instance of the tablestore.metadata.TableMeta class. tabl
e_meta specifies the table name and primary key schema.
        For more information, see the documentation for the TableMeta class. After you cr
eate a table, it takes about several seconds to load the partitions in the table. You can
perform operations on the table only after the partitions are loaded.
        table_options is an instance of the tablestore.metadata.TableOptions class. table
_options contains the time_to_live, max_version, and max_time_deviation parameters.
        reserved_throughput is an instance of the tablestore.metadata.ReservedThroughput
class. reserved_throughput specifies the reserved read throughput and reserved write thro
ughput.
        Return value: none.
        def create_table(self, table_meta, reserved_throughput):
```

- Examples

  The following code provides an example on how to create a table. In this example, a table that contains two primary key columns is created. time_to_live is set to 31,536,000 seconds (one year), max_version to 3, max_time_deviation to 86,400 seconds (one day), and reserved_throughput to (0,0).

```
    # Create a schema for the primary key columns, including the quantity, names, and dat
a types of primary keys.
    # The first primary key column is of the integer type and named pk0. The first primar
y key column is partition key.
    # The second primary key column is of the integer type and named pk1. The data type i
s specified as integer in this example. You can also set the data type to string or binar
y.
    schema_of_primary_key = [('pk0', 'INTEGER'), ('pk1', 'INTEGER')]
    # Create a table_meta instance based on the table name and the schema of primary key
columns.
    table_meta = TableMeta('SampleTable', schema_of_primary_key)
    # Create a TableOptions instance. Set time_to_live to 31,536,000 seconds (one year) a
nd delete expired data, max_version to 3, and max_time_deviation to 86,400 seconds (one d
ay).
    table_options = TableOptions(31536000, 3, 86400)
    # Set both the reserved read throughput and reserved write throughput to 0.
    reserved_throughput = ReservedThroughput(CapacityUnit(0, 0))
    # Call the create_table method of the client. If no exceptions occur, the table is cr
eated. If an exception occurs, the table fails to be created.
    try:
        ots_client.create_table(table_meta, table_options, reserved_throughput)
        print "create table succeeded"
    # If the task fails, an exception is returned and handled.
    except Exception:
        print "create table failed."
```

  For the detailed sample code, visit CreateTable@GitHub.

ListTable

You can call this operation to obtain the names of all tables created in the current instance.

- API operation

```
```

- Examples

  The following code provides an example on how to obtain the names of all tables in an instance.

```
    try:
        list_response = ots_client.list_table()
        print 'table list:'
        for table_name in list_response:
            print table_name
        print "list table succeeded"
    except Exception:
        print "list table failed."
```

  For the detailed sample code, visit ListTable@GitHub.

UpdateTable

You can call this operation to update the maximum number of versions and the reserved read/write throughput of a table.

- API operation

```
    """
        Description: You can call this method to update the attributes of a table. This m
ethod can modify only the reserved read/write throughput of a table.
        ``table_name`` specifies the name of the table.
        ``table_options`` is an instance of the ``tablestore.metadata.TableOptions`` clas
s. It contains the time_to_live, max_version, and max_time_deviation parameters.
        ``reserved_throughput`` is an instance of the ``ots2.metadata.ReservedThroughput`
` class. It specifies the reserved read throughput and reserved write throughput.
        Return value: the time when the reserved read throughput or reserved write throug
hput was raised or lowered most recently for this table and the number of times it was lo
wered today.
        ``update_table_response`` indicates the update result. It is an instance of the o
ts2.metadata.UpdateTableResponse class.
        """
        def update_table(self, table_name, table_options, reserved_throughput):
```

- Examples

  The following code provides an example on how to update the maximum number of versions of a table to five.

```
        # Set both the reserved read throughput and reserved write throughput to 0.
        reserved_throughput = ReservedThroughput(CapacityUnit(0, 0))
        # Create a TableOptions instance. Set time_to_live to 31536000 seconds (one year)
and delete expired data, max_version to 3, and max_time_deviation to 86400 seconds (one d
ay).
        table_options = TableOptions(31536000, 5, 86400)
        try:
            # Call the operation to update the reserved read/write throughput of the tabl
e.
            ots_client.update_table('SampleTable', reserved_throughput)
            # If the task succeeds, no exception is returned.
            print "update table succeeded"
        except Exception:
            # If the task fails, an exception is returned and handled.
            print "update table failed"
```

For the detailed sample code, visit UpdateTable@GitHub.

DescribeTable

You can call this operation to query the structure information and reserved read/write throughput value of the specified table.

- API operation

```
        """
        Description: You can call this method to obtain the description of a table.
        ``table_name`` specifies the name of the table.
        Return value: the description of the table.
        ``describe_table_response`` indicates the description of the table, which is an i
nstance of the ots2.metadata.DescribeTableResponse class.
        """
        def describe_table(self, table_name):
```

- Examples

  The following code provides an example on how to obtain the description of a table.

```
    try:
        describe_response = ots_client.describe_table('myTable')
        # If no exception is returned, the description is obtained and the following info
rmation is displayed.
        print "describe table succeeded."
        print ('TableName: %s' % describe_response.table_meta.table_name)
        print ('PrimaryKey: %s' % describe_response.table_meta.schema_of_primary_key)
        print ('Reserved read throughput: %s' % describe_response.reserved_throughput_det
ails.capacity_unit.read)
        print ('Reserved write throughput: %s' % describe_response.reserved_throughput_de
tails.capacity_unit.write)
        print ('Last increase throughput time: %s' % describe_response.reserved_throughpu
t_details.last_increase_time)
        print ('Last decrease throughput time: %s' % describe_response.reserved_throughpu
t_details.last_decrease_time)
        print ('table options\'s time to live: %s' % describe_response.table_options.time
_to_live)
        print ('table options\'s max version: %s' % describe_response.table_options.max_v
ersion)
        print ('table options\'s max_time_deviation: %s' % describe_response.table_option
s.max_time_deviation)
    except Exception:
        # If the task fails, an exception is returned and handled.
        print "describe table failed."
```

For the detailed sample code, visit DescribeTable@GitHub.

DeleteTable

You can call this operation to delete a specified table from the current instance.

- API operation

```
        """
        Description: You can call this method to delete a table based on the table name.
        ``table_name`` specifies the name of the table.
        Return value: none.
        """
        def delete_table(self, table_name):
```

- Examples

  The following code provides an example on how to delete a table.

```
try:
    # Call the operation to delete the table named SampleTable.
    ots_client.delete_table('SampleTable')
    # If the task succeeds, no exception is returned.
    print "delete table succeeded"
    # If the task fails, an exception is returned and handled.
except Exception:
    print "delete table failed"
```

For the detailed sample code, visit DeleteTable@GitHub.

Single-row operations

Tablestore SDK for Python provides the following single-row operations: PutRow, GetRow, UpdateRow, and DeleteRow.

PutRow

You can call this operation to insert a row of data. If this row already exists, it is overwritten.

- API operation

```
        """
        Description: This operation writes a single row of data. Thu number of capacity u
nites (CUs) consumed by the operation is returned.
        table_name specifies the name of the table.
        row specifies the row you want to insert to the table, including a primary key an
d attribute columns.
        condition is an instance of the tablestore.metadata.Condition class. By specifyin
g conditions, the system checks whether the specified conditions are met before the syste
m performs the operation. If the conditions are met, the operation is performed. This fun
ction supports only row existence checks. Check conditions include IGNORE, EXPECT_EXIST,
and EXPECT_NOT_EXIST.
        return_type specifies the data type to return. return_type is an instance of the
tablestore.metadata.ReturnType class. You can only use return_type to specify the type of
primary key data to return. This parameter applies to auto-increment primary key columns.
        Response: the number of capacity units (CUs) consumed by this operation and the r
ow data to return.
        consumed is an instance of the tablestore.metadata.CapacityUnit class.  This para
meter indicates the number of CUs consumed by this operation.
        return_row indicates the row to return, including the primary key and attribute c
olumns.
        """
        def put_row(self, table_name, row, condition = None, return_type = None)
```

- Examples

  The following code provides an example on how to insert a row of data:

  > **Note**
  > - RowExistenceExpectation.IGNORE indicates that a row of data is inserted regardless of whether the specified row exists or not. If the specified row exists, the existing data is overwritten.
  > - RowExistenceExpectation.EXPECT_EXIST indicates that a row of data is inserted only when the specified row exists. The existing data is overwritten.
  > - RowExistenceExpectation.EXPECT_NOT_EXIST indicates that a row of data is inserted only when the specified row does not exist.
  > - In the following example, the data version in the age attribute column is 1498184687000, which indicates June 23, 2017. If the current time minus max_time_deviation (specified during table creation) is greater than 1498184687000, PutRow is disabled.

```
    ## The first primary key column of the primary key is gid and its value is the intege
r 1. The second primary key column is uid and its value is the integer 101.
    primary_key = [('gid',1), ('uid',101)]
    ## Insert the following attribute columns:
    ##                       The name of the first attribute column is name and its valu
e is the string John. The version is not specified, so the current system time is used as
the version.
    ##                       The name of the second attribute column is mobile and its v
alue is the integer 15100000000. The version is not specified, so the current system time
is used as the version.
    ##                       The name of the third attribute column is address and its v
alue is the binary string China. The version is not specified, so the current system time
is used as the version.
    ##                       The name of the fourth attribute column is age and its valu
e is 29.7. The version number is 1498184687.
    attribute_columns = [('name','John'), ('mobile',15100000000),('address', bytearray('C
hina')),('female', False), ('age', 29.7, 1498184687000)]
    ## Construct a row by using primary_key and attribute_columns.
    row = Row(primary_key, attribute_columns)
    # The condition for row check is that the expected row does not exist. If the specifi
ed row exists, the Condition Update Failed error occurs.
    condition = Condition(RowExistenceExpectation.EXPECT_NOT_EXIST)
    try :
        # If ReturnType is not specified when you call the put_row method, the value of r
eturn_row is None.
        consumed, return_row = client.put_row(table_name, row, condition)
        # The write CUs consumed by this request is displayed.
        print ('put row succeed, consume %s write cu.' % consumed.write)
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "put row failed, http_status:%d, error_message:%s" % (e.get_http_status(),
e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "put row failed, http_status:%d, error_code:%s, error_message:%s, request_i
d:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id
())
```

For the detailed code, visit PutRow@GitHub.

GetRow

You can call this opertaion to read a row of data.

The following results of the read request may be returned:

- If the row exists, the primary key columns and attribute columns of the row are returned.
- If the row does not exist, no row is returned and no error is reported.
- API operation

```
        """
        Description: This operation reads a single row of data.
        table_name specifies the name of the table.
        primary_key specifies the primary key. Type: list.
        columns_to_get is optional. This parameter specifies the columns to read. If you
do not specify this parameter, all columns are read. Type: list.
        column_filter is optional. This parameter specifies the filter conditions for col
umns. Only rows that meet the condition are returned.
        max_version is optional. This parameter specifies the maximum number of versions
that can be read. You must specify at least one of max_version and time_range.
        time_range is optional. This parameter specifies a range of versions to read or a
version of data to read. You must specify at least one of max_version and time_range.
        Response: the number of CUs consumed by this operation and the primary key column
s and attribute columns.
        consumed is an instance of the tablestore.metadata.CapacityUnit class. This param
eter indicates the number of CUs consumed by this operation.
        return_row indicates the row to return, including the primary key and attribute c
olumns. Type: list. Example: [('PK0',value0), ('PK1',value1)].
        next_token indicates the start column of a wide row to read next time. The data t
ype of the column is binary.
        """
        def get_row(self, table_name, primary_key, columns_to_get=None,
                column_filter=None, max_version=None, time_range=None,
                start_column=None, end_column=None, token=None):
```

- Examples

  The following code provides an example on how to read a row of data:

```
    # The first primary key column of the primary key is uid and its value is the integer
1. The second primary key column is gid and its value is the integer 101.
    primary_key = [('uid',1), ('gid',101)]
    # The attribute columns to return are name, growth, and type. If the value of columns
_to_get is [], all attribute columns are returned.
    columns_to_get = ['name', 'growth', 'type']
    # Set filters for the columns. If the value in the growth column is not 0.9 and the v
alue in the name column is Hangzhou, this row is returned.
    cond = CompositeColumnCondition(LogicalOperator.AND)
    cond.add_sub_condition(SingleColumnCondition("growth", 0.9, ComparatorType.NOT_EQUAL)
)
    cond.add_sub_condition(SingleColumnCondition("name", 'Hangzhou', ComparatorType.EQUAL
))
    try:
        # If you set the value of the last parameter to 1 when you call the get_row opera
tion, only a version of data is returned in the response.
        consumed, return_row, next_token = client.get_row(table_name, primary_key, column
s_to_get, cond, 1)
        print ('Read succeed, consume %s read cu.' % consumed.read)
        print ('Value of primary key: %s' % return_row.primary_key)
        print ('Value of attribute: %s' % return_row.attribute_columns)
        for att in return_row.attribute_columns:
            # Display the key, value, and version of each column.
            print ('name:%s\tvalue:%s\ttimestamp:%d' % (att[0], att[1], att[2]))
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "get row failed, http_status:%d, error_message:%s" % (e.get_http_status(),
e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "get row failed, http_status:%d, error_code:%s, error_message:%s, request_i
d:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id
())
```

For the detailed code, visit GetRow@GitHub.

UpdateRow

You can call this operation to update data of a specified row. You can add or delete attribute columns of a row, delete a specified version of data from an attribute column, or update the existing data in an attribute column. If the row does not exist, a new row is added.

> **Note** If the UpdateRow request only contains columns to delete, and the specified row does not exist, a new row is not added.

- API operation

```
        """
        Description: This operation updates a single row of data.
        table_name specifies the name of the table.
        row specifies the row you want to delete, including a primary key and attribute c
olumns of the list type.
        condition is an instance of the tablestore.metadata.Condition class. By specifyin
g conditions, the system checks whether the specified conditions are met before the syste
m performs the operation. If the conditions are met, the operation is performed. This fun
ction supports row existence and column conditions checks. Check conditions for row inclu
de IGNORE, EXPECT_EXIST, and EXPECT_NOT_EXIST.
        return_type specifies the data type to return. return_type is an instance of the
tablestore.metadata.ReturnType class. You can only use return_type to specify the type of
primary key data to return. This parameter applies to auto-increment primary key columns.
        Response: the number of CUs consumed by this operation and the row data that is s
pecified by return_row to return.
        consumed is an instance of the tablestore.metadata.CapacityUnit class. This param
eter indicates the number of CUs consumed by this operation.
        return_row indicates the row to return.
        """
        def update_row(self, table_name, row, condition, return_type = None)
```

- Examples

  The following code provides an example on how to update the data of a specified row:

```
    # The first primary key column of the primary key is uid and its value is the integer 1. The second primary key column is gid and its value is the integer 101.
    primary_key = [('uid',1), ('gid',101)]
    # The update types include PUT, DELETE, and DELETE_ALL.
    # PUT: adds a value to the column or updates the existing value in the column. In the example, two columns are added. The first column is name and its value is David. The second column is address and its value is Hongkong.
    # DELETE: deletes a specified version (timestamp) of data. In this example, data of the 1488436949003 version in the address column is deleted.
    # DELETE_ALL: deletes the column. In the example, the date of all versions in the mobile and age columns are deleted.
    update_of_attribute_columns = {
        'PUT' : [('name','David'), ('address','Hongkong')],
        'DELETE' : [('address', None, 1488436949003)],
        'DELETE_ALL' : [('mobile'), ('age')],
    }
    row = Row(primary_key, update_of_attribute_columns)
    # The condition for row check is that the row existence is ignored. No matter whether the row exists, the row is updated.
    condition = Condition(RowExistenceExpectation.IGNORE, SingleColumnCondition("age", 20, ComparatorType.EQUAL)) # update row only when this row is exist
    try:
        consumed, return_row = client.update_row(table_name, row, condition)
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "update row failed, http_status:%d, error_message:%s" % (e.get_http_status(), e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "update row failed, http_status:%d, error_code:%s, error_message:%s, request_id:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id())
```

For the detailed code, visit UpdateRow@GitHub.

DeleteRow

You can call this operation to delete a row of data. If the row to delete does not exist, no changes are made to the table.

- API operation

```
        """
        Description: This operation deletes a single row of data.
        table_name specifies the name of the table.
        row specifies the row you want to delete, including only the primary key.
        condition is an instance of the tablestore.metadata.Condition class. By specifyin
g conditions, the system checks whether the specified conditions are met before the syste
m performs the operation. If the conditions are met, the operation is performed. This fun
ction supports row existence and column conditions checks. Check conditions for row inclu
de IGNORE, EXPECT_EXIST, and EXPECT_NOT_EXIST.
        Response: the number of CUs consumed by this operation and the row data that is s
pecified by return_row to return.
        consumed is an instance of the tablestore.metadata.CapacityUnit class. This param
eter indicates the number of CUs consumed by this operation.
        return_row indicates the row to return.
        """
        def delete_row(self, table_name, row, condition, return_type = None):
```

- Examples

  The following code provides an example on how to delete a row of data:

```
    primary_key = [('gid',1), ('uid','101')]
    row = Row(primary_key)
    try:
        consumed, return_row = client.delete_row(table_name, row, None)
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "update row failed, http_status:%d, error_message:%s" % (e.get_http_status(
), e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "update row failed, http_status:%d, error_code:%s, error_message:%s, reques
t_id:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request
_id())
    print ('Delete succeed, consume %s write cu.' % consumed.write)
```

  For the detailed sample code, visit DeleteRow@GitHub.

Multi-row operations

Tablestore SDK for Python provides multi-row operations, such as BatchGetRow, BatchWriteRow, and GetRange.

BatchGetRow

You can call this operation to read several rows of data from one or more tables.

The BatchGetRow operation is a set of multiple GetRow operations. The execution, returning of results, and capacity unit (CU) consumption of each individual operation are carried out independently.

Compared with the execution of a large number of GetRow operations, the use of BatchGetRow can reduce the response time for requests and increase the data read rate.

- API operation

```
        """
        Description: This operation reads the specified rows of data.
        request = BatchGetRowRequest()
        request.add(TableInBatchGetRowItem(myTable0, primary_keys, column_to_get=None, co
lumn_filter=None))
        request.add(TableInBatchGetRowItem(myTable1, primary_keys, column_to_get=None, co
lumn_filter=None))
        request.add(TableInBatchGetRowItem(myTable2, primary_keys, column_to_get=None, co
lumn_filter=None))
        request.add(TableInBatchGetRowItem(myTable3, primary_keys, column_to_get=None, co
lumn_filter=None))
        response = client.batch_get_row(request)
        response: the response to the request. Type: tablestore.metadata.BatchGetRowRespo
nse
        """
        def batch_get_row(self, request):
```

- Examples

  The following code provides an example on how to read three rows of data at a time:

```
    # Specify the columns to return.
    columns_to_get = ['name', 'mobile', 'address', 'age']
    # Read three rows of data.
    rows_to_get = []
    for i in range(0, 3):
        primary_key = [('gid',i), ('uid',i+1)]
        rows_to_get.append(primary_key)
    # Configure filtering conditions. Set name to John and address to China.
    cond = CompositeColumnCondition(LogicalOperator.AND)
    cond.add_sub_condition(SingleColumnCondition("name", "John", ComparatorType.EQUAL))
    cond.add_sub_condition(SingleColumnCondition("address", 'China', ComparatorType.EQUAL
))
    # Create a request to read multiple rows.
    request = BatchGetRowRequest()
    # Add rows to read from table_name. The 1 parameter specifies that the latest version
is read.
    request.add(TableInBatchGetRowItem(table_name, rows_to_get, columns_to_get, cond, 1))
    # Add rows to read from notExistTable.
    request.add(TableInBatchGetRowItem('notExistTable', rows_to_get, columns_to_get, cond
, 1))
    try:
           result = client.batch_get_row(request)
        print ('Result status: %s'%(result.is_all_succeed()))
        table_result_0 = result.get_result_by_table(table_name)
        table_result_1 = result.get_result_by_table('notExistTable')
        print ('Check first table\'s result:')
        for item in table_result_0:
            if item.is_ok:
                print ('Read succeed, PrimaryKey: %s, Attributes: %s' % (item.row.primary
_key, item.row.attribute_columns))
            else:
                print ('Read failed, error code: %s, error message: %s' % (item.error_cod
e, item.error_message))
        print ('Check second table\'s result:')
        for item in table_result_1:
            if item.is_ok:
                print ('Read succeed, PrimaryKey: %s, Attributes: %s' % (item.row.primary
_key, item.row.attribute_columns))
            else:
                print ('Read failed, error code: %s, error message: %s' % (item.error_cod
e, item.error_message))
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "get row failed, http_status:%d, error_message:%s" % (e.get_http_status(),
e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "get row failed, http_status:%d, error_code:%s, error_message:%s, request_i
d:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id
())
```

For the detailed sample code, visit BatchGetRow@GitHub.

BatchWriteRow

You can call this operation to insert, modify, or delete several rows of data in one or more tables.

The BatchWriteRow operation is a set of multiple PutRow, UpdateRow, and DeleteRow operations. The execution, returning of results, and CU consumption of each individual operation are carried out independently.

- API operation

```
        """
        Description: This operation writes data to multiple rows.
        request = MiltiTableInBatchWriteRowItem()
        request.add(TableInBatchWriteRowItem(table0, row_items))
        request.add(TableInBatchWriteRowItem(table1, row_items))
        response = client.batch_write_row(request)
        response indicates the returned result. Type: tablestore.metadata.BatchWriteRowRe
sponse.
        """
        def batch_write_row(self, request):
```

- Examples

  The following code provides an example on how to write multiple rows of data.

```
    put_row_items = []
    # Add rows for PutRow.
    for i in range(0, 10):
        primary_key = [('gid',i), ('uid',i+1)]
        attribute_columns = [('name','somebody'+str(i)), ('address','somewhere'+str(i)),
('age',i)]
        row = Row(primary_key, attribute_columns)
        condition = Condition(RowExistenceExpectation.IGNORE)
        item = PutRowItem(row, condition)
        put_row_items.append(item)
    # Add rows for UpdateRow.
    for i in range(10, 20):
        primary_key = [('gid',i), ('uid',i+1)]
        attribute_columns = {'put': [('name','somebody'+str(i)), ('address','somewhere'+s
tr(i)), ('age',i)]}
        row = Row(primary_key, attribute_columns)
        condition = Condition(RowExistenceExpectation.IGNORE, SingleColumnCondition("age"
, i, ComparatorType.EQUAL))
        item = UpdateRowItem(row, condition)
        put_row_items.append(item)
    # Add rows for DeleteRow.
    delete_row_items = []
    for i in range(10, 20):
        primary_key = [('gid',i), ('uid',i+1)]
        row = Row(primary_key)
        condition = Condition(RowExistenceExpectation.IGNORE)
        item = DeleteRowItem(row, condition)
        delete_row_items.append(item)
    # Create a request to write multiple rows.
    request = BatchWriteRowRequest()
```

```
    request.add(TableInBatchWriteRowItem(table_name, put_row_items))
    request.add(TableInBatchWriteRowItem('notExistTable', delete_row_items))
    # When you call the batch_write_row method to write multiple rows, exceptions may occ
ur if errors such as request parameter errors occur. If the operation fails for some rows
, an exception may not occur but the internal items may fail.
    try:
        result = client.batch_write_row(request)
        print ('Result status: %s'%(result.is_all_succeed()))
        # Check the result of inserting rows.
        print ('check first table\'s put results:')
        succ, fail = result.get_put()
        for item in succ:
            print ('Put succeed, consume %s write cu.' % item.consumed.write)
        for item in fail:
            print ('Put failed, error code: %s, error message: %s' % (item.error_code, it
em.error_message))
        # Check the result of updating rows.
        print ('check first table\'s update results:')
        succ, fail = result.get_update()
        for item in succ:
            print ('Update succeed, consume %s write cu.' % item.consumed.write)
        for item in fail:
            print ('Update failed, error code: %s, error message: %s' % (item.error_code,
item.error_message))
        # Check the result of deleting rows.
        print ('check second table\'s delete results:')
        succ, fail = result.get_delete()
        for item in succ:
            print ('Delete succeed, consume %s write cu.' % item.consumed.write)
        for item in fail:
            print ('Delete failed, error code: %s, error message: %s' % (item.error_code,
item.error_message))
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "get row failed, http_status:%d, error_message:%s" % (e.get_http_status(),
e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "get row failed, http_status:%d, error_code:%s, error_message:%s, request_i
d:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id
())
```

For the detailed sample code, visit BatchWriteRow@GitHub.

GetRange

You can call this operation to read data within the specified primary key range.

- API operation

```
        """
        Description: This operation reads data from multiple rows within the specified ra
nge.
        table_name: the name of the table.
        direction: the order for this query. Data type: string. Valid values: FORWARD and
BACKWARD.
        inclusive_start_primary_key: the primary key column from which the read starts. I
f the specified row exists, the row is included in the response.
        exclusive_end_primary_key: the primary key column at which the read ends. The end
primary key column is excluded from the response even if the row exists.
        columns_to_get: optional. This parameter specifies the names of columns to read.
If you do not specify this parameter, all columns are read. Type: list.
        limit: optional. This parameter specifies the maximum number of rows to read. If
you do not specify this parameter, all rows are read.
        column_filter: optional. This parameter specifies the filter conditions for colum
ns. Only rows that meet the condition are returned.
        max_version: optional. This parameter specifies the maximum number of versions to
return. You must specify at least one of max_version and time_range.
        time_range: optional. This parameter specifies the range of versions from which d
ata is read. You must specify at least one of max_version and time_range.
        start_column: optional. This parameter specifies the column from which the read s
tarts, which is used to read wide rows.
        end_column: optional. This parameter specifies the column at which the read ends,
which is used to read wide rows.
        token: optional. This parameter specifies the start column of a wide row to read
next time. The value of this parameter is returned by the last read request, and encoded
as binary data.
        Response: the results that meet the conditions.
        consumed: the number of CUs consumed by this operation. This parameter specifies
an instance of the tablestore.metadata.CapacityUnit class.
        next_start_primary_key indicates the primary key column from which you want to st
art the next get_range operation. Type: dict.
        row_list indicates the list of returned rows of data. Format: [Row, ...].
        """
   def get_range(self, table_name, direction,
                 inclusive_start_primary_key,
                 exclusive_end_primary_key,
                 columns_to_get=None,
                 limit=None,
                 column_filter=None,
                 max_version=None,
                 time_range=None,
                 start_column=None,
                 end_column=None,
                 token = None):
```

- Examples

  The following code provides an example on how to read data within the specified range:

```
    # Specify the start primary key.
    inclusive_start_primary_key = [('uid',INF_MIN), ('gid',INF_MIN)]
    # Specify the end primary key.
    exclusive_end_primary_key = [('uid',INF_MAX), ('gid',INF_MAX)]
```

```
    # Query all columns.
    columns_to_get = []
    # Set limit to 90 to return a maximum of 90 rows of data. If a total of 100 rows are
to return, you can set limit to 90 in the first query. The next_start_primary_key value i
s not None.
    limit = 90
    # Configure the filter conditions.
    cond = CompositeColumnCondition(LogicalOperator.AND)
    cond.add_sub_condition(SingleColumnCondition("address", 'China', ComparatorType.EQUAL
))
    cond.add_sub_condition(SingleColumnCondition("age", 50, ComparatorType.LESS_THAN))
    try:
        # Call the get_range operation.
        consumed, next_start_primary_key, row_list, next_token  = client.get_range(
                table_name, Direction.FORWARD,
                inclusive_start_primary_key, exclusive_end_primary_key,
                columns_to_get,
                limit,
                column_filter = cond,
                max_version = 1
                time_range = (1557125059000, 1557129059000) # The start_time value is equ
al to or greater than 1557125059000. The end_time value is smaller than 1557129059000.
    )
        all_rows = []
        all_rows.extend(row_list)
        # If the next_start_primary_key value is not None, the read continues until all r
emaining data is read.
        while next_start_primary_key is not None:
            inclusive_start_primary_key = next_start_primary_key
            consumed, next_start_primary_key, row_list, next_token = client.get_range(
                table_name, Direction.FORWARD,
                inclusive_start_primary_key, exclusive_end_primary_key,
                columns_to_get, limit,
                column_filter = cond,
                max_version = 1
        )
            all_rows.extend(row_list)
        # Display the primary key and attribute columns.
        for row in all_rows:
            print (row.primary_key, row.attribute_columns)
        print ('Total rows: ', len(all_rows))
    # Client exceptions are caused by parameter errors or network exceptions.
    except OTSClientError as e:
        print "get row failed, http_status:%d, error_message:%s" % (e.get_http_status(),
e.get_error_message())
    # Server exceptions are caused by parameter or throttling errors.
    except OTSServiceError as e:
        print "get row failed, http_status:%d, error_code:%s, error_message:%s, request_i
d:%s" % (e.get_http_status(), e.get_error_code(), e.get_error_message(), e.get_request_id
())
```

For the detailed sample code, visit GetRange@GitHub.

Global secondary indexes

This topic describes how to create and delete a global secondary index.

Create a global secondary index

You can create a global secondary index when you create a table. You can also create a global secondary index for an existing table.

The fields of a global secondary index must be specified in defined_columns when you create a table.

- Create a global secondary index when you create a table

```
schema_of_primary_key = [('gid', 'INTEGER'), ('uid', 'STRING')]
defined_columns = [('i', 'INTEGER'), ('bool', 'BOOLEAN'), ('d', 'DOUBLE'), ('s', 'STRING'
), ('b', 'BINARY')]
table_meta = TableMeta(table_name, schema_of_primary_key, defined_columns)
table_option = TableOptions(-1, 1)
reserved_throughput = ReservedThroughput(CapacityUnit(0, 0))
secondary_indexes = [
    SecondaryIndexMeta('index1', ['i', 's'], ['bool', 'b', 'd']),
    ]
client.create_table(table_meta, table_option, reserved_throughput, secondary_indexes)
```

- Create a global secondary index for an existing table

```
index_meta = SecondaryIndexMeta('index2', ['i', 's'], ['bool', 'b', 'd'])
client.create_secondary_index(table_name, index_meta)
```

Delete a global secondary index

Delete an index table.

```
client.delete_secondary_index(table_name, 'index1')
```

7.1.2.1.2.5. Error handling

This topic describes the error handling methods and retry policies in Tablestore SDK for Python.

Methods

Tablestore SDK for Python handles errors as exceptions. If the operation succeeds, the called operation does not return an exception. If the operation fails, an exception is returned.

> **Note** Batch operations such as BatchGetRow and BatchWriteRow can be called only after the system verifies that no exception is returned and that the status of each row is successful.

Exceptions

Tablestore SDK for Python has two types of exceptions: OTSClientError and OTSServiceError. Both are inherited from Exception.

- OTSClientError: an internal SDK exception, such as an invalid parameter value or a failure to parse the results returned by the server.

- OTSServiceError: a server error that comes from the resolution of a server error message. OTSServiceError contains the following parameters:
  - get_http_status: an HTTP status code, such as 200 and 404.
  - get_error_code: an error type string returned by Tablestore.
  - get_error_message: an error message string returned by Tablestore.
  - get_request_id: the UUID that identifies a request. If you cannot solve the problem, record this request ID and contact Tablestore technical support for help.

Retry

- Tablestore SDK for Python automatically retries an operation when an error occurs. In the default retry policy, the maximum retry attempts is 20, and the maximum retry interval is 3,000 ms. For more information about the retry policies for throttling errors and internal server errors related to write operations, see tablestore/retry.py.
- You can also customize a retry policy by inheriting the RetryPolicy class, and configure the custom retry policy when you create an OTSClient object.

Tablestore SDK for Python provides the following retry policies:

- DefaultRetryPolicy: the default retry policy. Only read operations are retried. The maximum retry attempts is 20, and the maximum retry interval is 3,000 ms.
- NoRetryPolicy: no operation is retried.
- NoDelayRetryPolicy: a retry policy without any delays. Exercise caution when you configure this policy.
- WriteRetryPolicy: the write operations are retried based on the default retry policy.

7.1.2.1.3. Go SDK

7.1.2.1.3.1. Preface

This topic describes how to install and use Tablestore SDK for Go.

Prerequisites

An authorized account is created, and an AccessKey pair (AccessKey ID and AccessKey secret) is obtained. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

Download and install Tablestore SDK for Go

- For the download path of SDK for Go, visit SDK package (including package, source code and examples).
- For more information about how to install Tablestore SDK for Go, see Installation.

Version

Latest version: 5.0.2

7.1.2.1.3.2. Installation

This topic describes how to install Tablestore SDK for Go.

Preparations

Go 1.4 or later is available.

Installation methods

Run the following command to install Tablestore SDK for Go:

```
    go get github.com/aliyun/aliyun-tablestore-go-sdk
```

7.1.2.1.3.3. Initialization

TableStoreClient provides a series of methods for users to manage tables and perform read/write operations on a single row or multiple rows.

Obtain an endpoint

An endpoint is the domain name that is used to access a Tablestore instance in a region. To query an endpoint, perform the following operations:

1. Log on to the Tablestore console.
2. Click the instance name to go to the **Instance Management** page.

   On the Instance Details tab, you can view the endpoints of the instance in Instance Access URL.

Configure an AccessKey pair

To access Apsara Stack Tablestore, you must have a valid AccessKey pair (AccessKey ID and AccessKey secret) for signature authentication.

After you obtain the AccessKey pair, you can perform the following operation to initialize an OTSClient instance by using an endpoint:

- API operation

```
    // Initialize the TableStoreClient instance.
    // endPoint indicates the endpoint used to access the Tablestore instance, which must start with https://. Example: https://instance.cn-hangzhou.ots.aliyun.com:80.
    // accessKeyId indicates the AccessKey ID used to access the Tablestore instance. You can visit the official website or contact an administrator to obtain an AccessKey ID.
    // accessKeySecret indicates the AccessKey secret used to access the Tablestore instance. You can visit the official website or contact an administrator to obtain an AccessKey secret.
    // instanceName indicates the name of the instance to access. You can create an instance in the Tablestore console or contact an administrator to obtain the name of an existing instance.
func NewClient(endPoint, instanceName, accessKeyId, accessKeySecret string, options ...ClientOption) *TableStoreClient
```

- Examples

```
    client = NewClient("your_instance_endpoint", &amp;nbsp;"your_instance_name", "your_user_id", "your_user_key")
```

7.1.2.1.3.4. Use the SDK

Table-level operations

Tablestore SDK for Go provides the following table-level operations: CreateTable, ListTable, DeleteTable, UpdateTable, and DescribeTable.

CreateTable

You can call this operation to create a table based on the specified table structure.

> **Note**
> - After a table is created, it takes several seconds to load the table. During this period, the read and write operations on the table may fail. You can use applications to perform operations on the table data only after the table is loaded.
> - You must specify the primary key when you create a table. A primary key can contain one to four primary key columns. Each primary key column has a name and a data type.

- API operation

```
  // Create a table based on the specified table structure.
  // request is an instance of the CreateTableRequest class, which contains tablemeta, Ta
bleOption, and ReservedThroughput.
  // For more information, see the documentation of the TableMeta class.
  After you create a table, it takes several seconds to load the partitions in the table.
You can perform operations on the table only after the partitions are loaded.
  // Response: CreateTableResponse
        CreateTable(request *CreateTableRequest) (*CreateTableResponse, error)
```

- Examples

  The following code provides an example on how to create a table that contains two primary key columns and a reserved read/write throughput of (0,0):

```
 //Create a schema for the primary key columns, which includes the quantity, names, and t
ypes of primary key columns.
 //The first primary key column is named pk0 and requires an integer value. The first pri
mary key column is also the partition key.
 //The second primary key column is named pk1 and requires an integer value.
 tableMeta := new(tablestore.TableMeta)
 tableMeta.TableName = tableName
 tableMeta.AddPrimaryKeyColumn("pk0", tablestore.PrimaryKeyType_INTEGER)
 tableMeta.AddPrimaryKeyColumn("pk1", tablestore.PrimaryKeyType_STRING)
 tableOption := new(tablestore.TableOption)
 tableOption.TimeToAlive = -1
 tableOption.MaxVersion = 3
 reservedThroughput := new(tablestore.ReservedThroughput)
 reservedThroughput.Readcap = 0
 reservedThroughput.Writecap = 0
 createtableRequest.TableMeta = tableMeta
 createtableRequest.TableOption = tableOption
 createtableRequest.ReservedThroughput = reservedThroughput
 response, err = client.CreateTable(createtableRequest)
 if (err != nil) {
     fmt.Println("Failed to create table with error:", err)
 } else {
    fmt.Println("Create table finished")
 }
```

For the detailed sample code, visit CreateTable@GitHub.

ListTable

You can call this operation to obtain the names of all tables created in the current instance.

- API operation

```
// List all tables. If the operation succeeds, names of all tables are returned.
ListTable() (*ListTableResponse, error)
```

- Examples

  The following code provides an example of how to obtain the names of all tables in an instance.

```
tables, err := client.ListTable()
if err != nil {
    fmt.Println("Failed to list table")
} else {
    fmt.Println("List table result is")
    for _, table := range (tables.TableNames) {
        fmt.Println("TableName: ", table)
    }
}
```

For the detailed sample code, visit ListTable@GitHub.

UpdateTable

You can use the UpdateTable API to update the reserved read/write throughput settings of the specified table.

- API operation

```
// Update the configurations of tableoptions and reservedthroughput for a table.
UpdateTable(request *UpdateTableRequest) (*UpdateTableResponse, error)
```

- Examples

  The following code provides an example on how to update the setting of MaxVersion of a table to 5:

```
updateTableReq := new(tablestore.UpdateTableRequest)
updateTableReq.TableName = tableName
updateTableReq.TableOption = new(tablestore.TableOption)
updateTableReq.TableOption.TimeToAlive = -1
updateTableReq.TableOption.MaxVersion = 5
_, err := client.UpdateTable(updateTableReq)
if (err != nil) {
    fmt.Println("failed to update table with error:", err)
} else {
    fmt.Println("update finished")
}
```

  For the detailed sample code, visit UpdateTable@GitHub.

DescribeTable

You can call this operation to query the structure information and the reserved read/write throughput settings of a table.

- API operation

```
// Query the description of a table by using the table name.
DescribeTable(request *DescribeTableRequest) (*DescribeTableResponse, error)
```

- Examples

  The following code provides an example on how to obtain the description of a table:

```
describeTableReq := new(tablestore.DescribeTableRequest)
describeTableReq.TableName = tableName
describ, err := client.DescribeTable(describeTableReq)
if err != nil {
    fmt.Println("failed to update table with error:", err)
} else {
    fmt.Println("DescribeTableSample finished. Table meta:", describ.TableOption.MaxVersi
on, describ.TableOption.TimeToAlive)
}
```

For the detailed sample code, visit DescribeTable@GitHub.

DeleteTable

You can call this operation to delete a specified table from the current instance.

- API operation

```
DeleteTable(request *DeleteTableRequest) (*DeleteTableResponse, error)
```

- Examples

  The following code provides an example on how to delete a table:

```
deleteReq := new(tablestore.DeleteTableRequest)
deleteReq.TableName = tableName
_, err := client.DeleteTable(deleteReq)
if (err != nil) {
    fmt.Println("Failed to delete table with error:", err)
} else {
    fmt.Println("Delete table finished")
}
```

  For the detailed sample code, visit DeleteTable@GitHub.

Single-row operations

Tablestore SDK for Go provides the following single-row operations: PutRow, GetRow, UpdateRow, and DeleteRow.

PutRow

You can call this operation to insert data into a specified row.

- API operation

```
    // @param PutRowRequest    Encapsulate the parameters required to perform the PutRow operation.
    // @return PutRowResponse
    PutRow(request *PutRowRequest) (*PutRowResponse, error)
```

- Examples

  The following code provides an example on how to insert a row of data:

  > **Note**
  > - RowExistenceExpectation.IGNORE indicates that new data is inserted into a row despite whether the specified row exists or not. If the specified row exists, the existing data is overwritten.
  > - RowExistenceExpectation.EXPECT_EXIST indicates that new data is inserted only when the specified row exists. The existing data is overwritten.
  > - RowExistenceExpectation.EXPECT_NOT_EXIST indicates that data is inserted only when the specified row does not exist.

```
    putRowRequest := new(tablestore.PutRowRequest)
    putRowChange := new(tablestore.PutRowChange)
    putRowChange.TableName = tableName
    putPk := new(tablestore.PrimaryKey)
    putPk.AddPrimaryKeyColumn("pk1", "pk1value1")
    putPk.AddPrimaryKeyColumn("pk2", int64(2))
    putPk.AddPrimaryKeyColumn("pk3", []byte("pk3"))
    putRowChange.PrimaryKey = putPk
    putRowChange.AddColumn("col1", "col1data1")
    putRowChange.AddColumn("col2", int64(3))
    putRowChange.AddColumn("col3", []byte("test"))
    putRowChange.SetCondition(tablestore.RowExistenceExpectation_IGNORE)
    putRowRequest.PutRowChange = putRowChange
    _, err := client.PutRow(putRowRequest)
    if err != nil {
        fmt.Println("putrow failed with error:", err)
    } else {
        fmt.Println("putrow finished")
    }
```

For the detailed sample code, visit PutRow@GitHub.

GetRow

You can call this operation to read a single row of data based on a specified primary key.

```
    //Return a row of data from a table.
    //
    // @param GetRowRequest             Encapsulate the parameters required to perform th
e GetRow operation.
    // @return  GetRowResponse          The content of the response to the GetRow operati
on.
    GetRow(request *GetRowRequest) (*GetRowResponse, error)
```

- Examples

  The following code provides an example on how to read a row of data:

```
getRowRequest := new(tablestore.GetRowRequest)
    criteria := new(tablestore.SingleRowQueryCriteria);
    putPk := new(tablestore.PrimaryKey)
    putPk.AddPrimaryKeyColumn("pk1", "pk1value1")
    putPk.AddPrimaryKeyColumn("pk2", int64(2))
    putPk.AddPrimaryKeyColumn("pk3", []byte("pk3"))
    criteria.PrimaryKey = putPk
    getRowRequest.SingleRowQueryCriteria = criteria
    getRowRequest.SingleRowQueryCriteria.TableName = tableName
    getRowRequest.SingleRowQueryCriteria.MaxVersion = 1
    getResp, err := client.GetRow(getRowRequest)
    if err != nil {
        fmt.Println("getrow failed with error:", err)
    } else {
        fmt.Println("get row col0 result is ", getResp.Columns[0].ColumnName, getResp.Col
umns[0].Value)
    }
```

For the detailed sample code, visit GetRow@GitHub.

UpdateRow

You can call this operation to update the data of a specified row. If the row does not exist, a new row is added. If the row exists, the values of the specified columns are added, modified, or deleted based on the request content.

- API operation

```
    // Update a row of data in a table.
    // @param UpdateRowRequest      Encapsulate the parameters required to perform the Up
dateRow operation.
    // @return UpdateRowResponse    The content of the response to the UpdateRow operatio
n.
    UpdateRow(request *UpdateRowRequest) (*UpdateRowResponse, error)
```

- Examples

  The following code provides an example on how to update the data of a specified row:

```
    updateRowRequest := new(tablestore.UpdateRowRequest)
    updateRowChange := new(tablestore.UpdateRowChange)
    updateRowChange.TableName = tableName
    updatePk := new(tablestore.PrimaryKey)
    updatePk.AddPrimaryKeyColumn("pk1", "pk1value1")
    updatePk.AddPrimaryKeyColumn("pk2", int64(2))
    updatePk.AddPrimaryKeyColumn("pk3", []byte("pk3"))
    updateRowChange.PrimaryKey = updatePk
    updateRowChange.DeleteColumn("col1")
    updateRowChange.PutColumn("col2", int64(77))
    updateRowChange.PutColumn("col4", "newcol3")
    updateRowChange.SetCondition(tablestore.RowExistenceExpectation_EXPECT_EXIST)
    updateRowRequest.UpdateRowChange = updateRowChange
    _, err := client.UpdateRow(updateRowRequest)
    if err != nil {
        fmt.Println("update failed with error:", err)
    } else {
        fmt.Println("update row finished")
    }
```

For the detailed sample code, visit UpdateRow@GitHub.

DeleteRow

You can call this operation to delete data you no longer need.

- API operation

```
    // Delete a row of data from a table.
    // @param DeleteRowRequest           Encapsulate the parameters required to perform t
he DeleteRow operation.
    // @return DeleteRowResponse         The content of the response to the DeleteRow ope
ration.
    DeleteRow(request *DeleteRowRequest) (*DeleteRowResponse, error)
```

- Examples

  The following code provides an example on how to delete a row of data:

```
    deleteRowReq := new(tablestore.DeleteRowRequest)
    deleteRowReq.DeleteRowChange = new(tablestore.DeleteRowChange)
    deleteRowReq.DeleteRowChange.TableName = tableName
    deletePk := new(tablestore.PrimaryKey)
    deletePk.AddPrimaryKeyColumn("pk1", "pk1value1")
    deletePk.AddPrimaryKeyColumn("pk2", int64(2))
    deletePk.AddPrimaryKeyColumn("pk3", []byte("pk3"))
    deleteRowReq.DeleteRowChange.PrimaryKey = deletePk
    deleteRowReq.DeleteRowChange.SetCondition(tablestore.RowExistenceExpectation_EXPECT_E
XIST)
    clCondition1 := tablestore.NewSingleColumnCondition("col2", tablestore.CT_EQUAL, int6
4(3))
    deleteRowReq.DeleteRowChange.SetColumnCondition(clCondition1)
    _, err := client.DeleteRow(deleteRowReq)
    if err != nil {
        fmt.Println("delete failed with error:", err)
    } else {
        fmt.Println("delete row finished")
    }
```

For the detailed sample code, visit DeleteRow@GitHub.

Multi-row operations

Tablestore SDK for Go provides multi-row operations such as BatchGetRow, BatchWriteRow, GetRange, and GetByIterator.

BatchGetRow

You can call this operation to simultaneously read multiple rows of data from one or more tables.

The BatchGetRow operation is a set of multiple GetRow operations. The execution, returning of results, and capacity unit (CU) consumption of each individual operation are carried out independently.

Compared with the execution of a large number of GetRow operations, the use of BatchGetRow can reduce the response time for requests and increase the data read rate.

- API operation

```
    // Return multiple rows of data from a table.
    //
    // @param BatchGetRowRequest            Encapsulate the parameters required to perfo
rm the BatchGetRow operation.
    // @return  BatchGetRowResponse         The content of the response to the BatchGetR
ow operation.
    BatchGetRow(request *BatchGetRowRequest) (*BatchGetRowResponse, error)
```

- Examples

  The following code provides an example on how to read 10 rows of data at a time:

  > **Note** You can use conditional statements to filter the returned results of BatchWriteRow operations.

```
batchGetReq := &tablestore.BatchGetRowRequest{}
mqCriteria := &tablestore.MultiRowQueryCriteria{}
for i := 0; i < 10; i++ {
    pkToGet := new(tablestore.PrimaryKey)
    pkToGet.AddPrimaryKeyColumn("pk1", "pk1value1")
    pkToGet.AddPrimaryKeyColumn("pk2", int64(i))
    pkToGet.AddPrimaryKeyColumn("pk3", []byte("pk3"))
    mqCriteria.AddRow(pkToGet)
    mqCriteria.MaxVersion = 1
}
mqCriteria.TableName = tableName
batchGetReq.MultiRowQueryCriteria = append(batchGetReq.MultiRowQueryCriteria, mqCriteria)
batchGetResponse, err := client.BatchGetRow(batchGetReq)
if err != nil {
    fmt.Println("batachget failed with error:", err)
} else {
    fmt.Println("batchget finished")
}
```

For the detailed sample code, visit BatchGetRow@GitHub.

BatchWriteRow

You can call this operation to simultaneously insert, modify, or delete multiple rows of data in one or more tables.

The BatchWriteRow operation is a set of multiple PutRow, UpdateRow, and DeleteRow operations. The execution, returning of results, and CU consumption of each individual operation are carried out independently.

- API operation

```
    // Add, delete, or modify multiple rows of data in multiple tables.
    //
    // @param BatchWriteRowRequest             Encapsulate the parameters required to per
form the BatchWriteRow operation.
    // @return  BatchWriteRowResponse          The content of the response to the BatchWr
iteRow operation.
    BatchWriteRow(request *BatchWriteRowRequest) (*BatchWriteRowResponse,error)
```

- Examples

  The following code provides an example on how to write 100 rows of data:

  > **Note** You can use conditional statements to filter the returned results of BatchWriteRow operations.

```
    batchWriteReq := &tablestore.BatchWriteRowRequest{}
    for i := 0; i < 100; i++ {
        putRowChange := new(tablestore.PutRowChange)
        putRowChange.TableName = tableName
        putPk := new(tablestore.PrimaryKey)
        putPk.AddPrimaryKeyColumn("pk1", "pk1value1")
        putPk.AddPrimaryKeyColumn("pk2", int64(i))
        putPk.AddPrimaryKeyColumn("pk3", []byte("pk3"))
        putRowChange.PrimaryKey = putPk
        putRowChange.AddColumn("col1", "fixvalue")
        putRowChange.SetCondition(tablestore.RowExistenceExpectation_IGNORE)
        batchWriteReq.AddRowChange(putRowChange)
    }
    response, err := client.BatchWriteRow(batchWriteReq)
    if err != nil {
        fmt.Println("batch request failed with:", response)
    } else {
        fmt.Println("batch write row finished")
    }
```

For the detailed sample code, visit BatchWriteRow@GitHub.

GetRange

You can call this operation to read data within a specified primary key range.

- API operation

```
    // Query multiple rows of data within a specified range in a table.
    //
    // @param GetRangeRequest            Encapsulate the parameters required to perform t
he GetRange operation.
    // @return GetRangeResponse          The content of the response to the GetRange oper
ation.
    GetRange(request *GetRangeRequest) (*GetRangeResponse,error)
```

- Examples

  The following code provides an example on how to read data within a specified range:

  > **Note**
  > - You can use conditional statements to filter the returned results of GetRange operations.
  > - Note that the data may be paged when you perform the GetRange operation.

```
getRangeRequest := &tablestore.GetRangeRequest{}
    rangeRowQueryCriteria := &tablestore.RangeRowQueryCriteria{}
    rangeRowQueryCriteria.TableName = tableName
    startPK := new(tablestore.PrimaryKey)
    startPK.AddPrimaryKeyColumnWithMinValue("pk1")
    startPK.AddPrimaryKeyColumnWithMinValue("pk2")
    startPK.AddPrimaryKeyColumnWithMinValue("pk3")
    endPK := new(tablestore.PrimaryKey)
    endPK.AddPrimaryKeyColumnWithMaxValue("pk1")
    endPK.AddPrimaryKeyColumnWithMaxValue("pk2")
    endPK.AddPrimaryKeyColumnWithMaxValue("pk3")
    rangeRowQueryCriteria.StartPrimaryKey = startPK
    rangeRowQueryCriteria.EndPrimaryKey = endPK
    rangeRowQueryCriteria.Direction = tablestore.FORWARD
    rangeRowQueryCriteria.MaxVersion = 1
    rangeRowQueryCriteria.Limit = 10
    getRangeRequest.RangeRowQueryCriteria = rangeRowQueryCriteria
    getRangeResp, err := client.GetRange(getRangeRequest)
    fmt.Println("get range result is " ,getRangeResp)
    for {
        if err != nil {
            fmt.Println("get range failed with error:", err)
        }
        for _, row := range getRangeResp.Rows {
            fmt.Println("range get row with key", row.PrimaryKey.PrimaryKeys[0].Value, ro
w.PrimaryKey.PrimaryKeys[1].Value, row.PrimaryKey.PrimaryKeys[2].Value)
        }
        if getRangeResp.NextStartPrimaryKey == nil {
            break
        } else {
            fmt.Println("next pk is :", getRangeResp.NextStartPrimaryKey.PrimaryKeys[0].V
alue, getRangeResp.NextStartPrimaryKey.PrimaryKeys[1].Value, getRangeResp.NextStartPrimar
yKey.PrimaryKeys[2].Value)
            getRangeRequest.RangeRowQueryCriteria.StartPrimaryKey = getRangeResp.NextStar
tPrimaryKey
            getRangeResp, err = client.GetRange(getRangeRequest)
        }
        fmt.Println("continue to query rows")
    }
    fmt.Println("putrow finished")
```

For the detailed sample code, visit GetRange@GitHub.

7.1.2.1.4. NodeJS SDK

7.1.2.1.4.1. Preface

This topic describes how to use Tablestore SDK for Node.js. The content in this topic applies to Tablestore SDK for Node.js V4.x.x.

Prerequisites

An authorized account is created, and an AccessKey pair (AccessKey ID and AccessKey secret) is obtained. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

Download Tablestore SDK for Node.js

- SDK package
- GitHub

Version

Latest version: V4.1.0.

7.1.2.1.4.2. Installation

This topic describes how to install Tablestore SDK for Node.js.

Preparations

Node.js 4.0 or later is installed.

> **Note** We recommend that you do not use Node.js later than 12.0 and earlier than 12.14 to avoid compatibility problems.

Install Tablestore SDK for Node.js

Run the following command to install Tablestore SDK for Node.js:

```
npm install tablestore
```

> **Note** If you encounter any network problems when you use npm, you can use the npm image provided by Taobao.

Sample programs

Tablestore SDK for Node.js provides a variety of sample programs for your reference and use. You can obtain the sample programs by using one of the following methods:

- Download and decompress the Tablestore SDK for Node.js package. Find the sample programs in the examples folder.
- Access Tablestore SDK for Node.js on GitHub.

7.1.2.1.4.3. Initialization

TableStore.Client is the client for Tablestore. It provides a series of methods for you to perform operations on individual rows, multiple rows, or entire tables.

Obtain an endpoint

An endpoint is the domain name that is used to access a Tablestore instance in a region. To query an endpoint, perform the following operations:

1. Log on to the Tablestore console.
2. Click the instance name to go to the **Instance Management** page.

   On the Instance Details tab, you can view the endpoints of the instance in Instance Access URL.

Configure an AccessKey pair

To access Apsara Stack Tablestore, you must have a valid AccessKey pair (AccessKey ID and AccessKey secret) for signature authentication.

After you obtain the AccessKey pair, you can perform the following operation to initialize a Tablestore instance by using an endpoint:

```
var client = new TableStore.Client({
accessKeyId: '<your access key id>',
accessKeySecret: '<your access key secret>',
endpoint: '<your endpoint>',
instancename: '<your instance name>',
maxRetries:20,// The default number of retry attempts is 20. You can ignore this parameter.
    });
```

7.1.2.1.4.4. Data types

Tablestore supports five data types. This topic describes how each of these data types corresponds to those supported in Tablestore SDK for Node.js.

Data type in Tablestore	Data type in SDK for Node.js	Description
String	string	The basic data type in JavaScript.
Integer	int64	The type of data encapsulated by Node.js SDK.
Double	number	The basic data type in JavaScript.
Boolean	boolean	The basic data type in JavaScript.
Binary	Buffer	The Buffer object of Node.js.

The integer data in Tablestore is a 64-bit signed integer, which does not have a corresponding data type in JavaScript. Therefore, a data type that can indicate a 64-bit signed integer is required for Node.js. The following code provides an example on how to convert the integer data type of Tablestore:

```
var numberA = TableStore.Long.fromNumber(1000);
var numberB = TableStore.Long.fromString('2000');
var num = numberA.toNumber();
    num = numberA.toString();
var str = numberB.toNumber();
    str = numberB.toString();
```

7.1.2.1.4.5. Use the SDK

Table-level operations

Tablestore SDK for Node.js provides the following table-level operations: CreateTable, ListTable, DeleteTable, UpdateTable, and DescribeTable.

CreateTable

You can call this operation to create a table based on the specified table structure.

> **Note**
> - After the table is created, it can take several seconds to load the table. During this period, the read and write operations on the table may fail. You can use applications to perform operations on the table data only after the table is loaded.
> - You must specify the primary key when you create a table. A primary key can contain one to four primary key columns. Each primary key column has a name and a data type.

- API operation

```
/**
 * Create a table based on the specified table structure.
 */
createTable(params, callback)
```

- Examples

  The following code provides an example on how to create a table that has two primary key columns and a reserved read/write throughput of (0,0):

```
var client = require('./client');
var params = {
  tableMeta: {
    tableName: 'sampleTable',
    primaryKey: [
      {
        name: 'gid',
        type: 'INTEGER'
      },
      {
        name: 'uid',
        type: 'INTEGER'
      }
    ]
  },
  reservedThroughput: {
    capacityUnit: {
      read: 0,
      write: 0
    }
  },
  tableOptions: {
    timeToLive: -1,// Specify the validity period of data in seconds. A value of -1 indic
ates that the data never expires. If you set the validity period to a year, the value of
timeToLive is 365*24*3600.
    maxVersions: 1// Specify the maximum number of versions that can be saved in each col
umn. A value of 1 indicates that only the latest version is saved in each column.
  }
};
client.createTable(params, function (err, data) {
  if (err) {
    console.log('error:', err);
    return;
  }
  console.log('success:', data);
});
```

For the detailed sample code, visit CreateTable@GitHub.

ListTable

You can call this operation to obtain the names of all tables created in the current instance.

- API operation

```
  /**
   * Obtain the names of all tables in the current instance.
   */
  listTable(params, callback)
```

- Examples

The following code provides an example on how to obtain the names of all tables in the current instance:

```
var client = require('./client');
client.listTable({}, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

For the detailed sample code, visit ListTable@GitHub.

UpdateTable

You can call this operation to update the maximum number of versions and reserved read/write throughput of a table.

- API operation

```
  /**
   * Update the reserved read/write throughput of a specified table.
   */
  updateTable(params, callback)
```

- Examples

  Set the maximum number of versions of a table to 5.

```
var client = require('./client');
var params = {
    tableName: 'sampleTable',
    tableOptions: {
        maxVersions: 5,
    }
};
client.updateTable(params, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

For the detailed sample code, visit UpdateTable@GitHub.

DescribeTable

You can call this operation to query the structure information and the reserved read/write throughput settings of a table.

- API operation

```
  /**
   * Query the structure information and the reserved read/write throughput of the specif
ied table.
   */
  describeTable(params, callback)
```

- Examples

  The following code provides an example on how to obtain the description of a table:

```
var client = require('./client');
var params = {
    tableName: 'sampleTable'
};
client.describeTable(params, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

  For the detailed sample code, visit DescribeTable@GitHub.

DeleteTable

You can call this operation to delete a specified table from the current instance.

- API operation

```
  /**
   * Delete a specified table from the current instance.
   */
  deleteTable(params, callback)
```

- Examples

  The following code provides an example on how to delete a specified table from the current instance:

```
var client = require('./client');
var params = {
    tableName: 'sampleTable'
};
client.deleteTable(params, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

For the detailed sample code, visit DeleteTable@GitHub.

Single-row operations

Tablestore SDK for Node.js provides the following single-row operations: PutRow, GetRow, UpdateRow, and DeleteRow.

PutRow

You can call this operation to insert data into a specified row.

- API operation

```
  /**
   * Insert data into a specified row. If the row exists, the existing data is overwritte
n. Otherwise, a new row is added.
   */
  putRow(params, callback)
```

- Examples

> **Note**
>
> - RowExistenceExpectation.IGNORE indicates that new data is inserted into a row despite whether the specified row exists or not. If the specified row exists, the existing data is overwritten.
> - RowExistenceExpectation.EXPECT_EXIST indicates that new data is inserted only when the specified row exists. The existing data is overwritten.
> - RowExistenceExpectation.EXPECT_NOT_EXIST indicates that data is inserted only when the specified row does not exist.

```
var TableStore = require('../index.js');
var Long = TableStore.Long;
var client = require('./client');
var currentTimeStamp = Date.now();
var params = {
  tableName: "sampleTable",
  condition: new TableStore.Condition(TableStore.RowExistenceExpectation.IGNORE, null),
  primaryKey: [{ 'gid': Long.fromNumber(20013) }, { 'uid': Long.fromNumber(20013) }],
  attributeColumns: [
    { 'col1': 'Tablestore' },
    { 'col2': '2', 'timestamp': currentTimeStamp },
    { 'col3': 3.1 },
    { 'col4': -0.32 },
    { 'col5': Long.fromNumber(123456789) }
  ],
  returnContent: { returnType: TableStore.ReturnType.Primarykey }
};
client.putRow(params, function (err, data) {
  if (err) {
    console.log('error:', err);
    return;
  }
  console.log('success:', data);
});
```

For the detailed sample code, visit PutRow@GitHub.

GetRow

You can call this operation to read a single row of data based on a specified primary key.

- API operation

```
  /**
   * Read a single row of data based on a specified primary key.
   */
  getRow(params, callback)
```

- Examples

  The following code provides an example on how to read a row of data:

```
var TableStore = require('../index.js');
var Long = TableStore.Long;
var client = require('./client');
var params = {
  tableName: "sampleTable",
  primaryKey: [{ 'gid': Long.fromNumber(20004) }, { 'uid': Long.fromNumber(20004) }],
  maxVersions: 2 // The maximum number of versions that can be read. A value of 2 indicat
es that you can read a maximum of 2 versions of data.
};
var condition = new TableStore.CompositeCondition(TableStore.LogicalOperator.AND);
condition.addSubCondition(new TableStore.SingleColumnCondition('name', 'john', TableStore
.ComparatorType.EQUAL));
condition.addSubCondition(new TableStore.SingleColumnCondition('addr', 'china', TableStor
e.ComparatorType.EQUAL));
params.columnFilter = condition;
client.getRow(params, function (err, data) {
  if (err) {
    console.log('error:', err);
    return;
  }
  console.log('success:', data);
});
```

For the detailed sample code, visit GetRow@GitHub.

UpdateRow

You can call this operation to update the data of a specified row. If the row does not exist, a new row is added. If the row exists, the values in the specified columns are added, modified, or deleted based on the request.

- API operation

```
  /**
   * Update the data of the specified row. If the row does not exist, a new row is added.
If the row exists, the values of the specified columns are added, modified, or deleted ba
sed on the request content.
   */
  updateRow(params, callback)
```

- Examples

  The following code provides an example on how to update the data of a specified row:

```
var TableStore = require('../index.js');
var Long = TableStore.Long;
var client = require('./client');
var params = {
    tableName: "sampleTable",
    condition: new TableStore.Condition(TableStore.RowExistenceExpectation.IGNORE, null),
    primaryKey: [{ 'gid': Long.fromNumber(9) }, { 'uid': Long.fromNumber(90) }],
    updateOfAttributeColumns: [
        { 'PUT': [{ 'col4': Long.fromNumber(4) }, { 'col5': '5' }, { 'col6': Long.fromNum
ber(6) }] },
        { 'DELETE': [{ 'col1': Long.fromNumber(1496826473186) }] },
        { 'DELETE_ALL': ['col2'] }
    ]
};
client.updateRow(params,
    function (err, data) {
        if (err) {
            console.log('error:', err);
            return;
        }
        console.log('success:', data);
    });
```

For the detailed sample code, visit UpdateRow@GitHub.

DeleteRow

You can call this operation to delete data you no longer need.

- API operation

```
  /**
   * Delete a row of data.
   */
  deleteRow(params, callback)
```

- Examples

  The following code provides an example on how to delete a row of data:

```
var TableStore = require('../index.js');
var Long = TableStore.Long;
var client = require('./client');
var params = {
    tableName: "sampleTable",
    condition: new TableStore.Condition(TableStore.RowExistenceExpectation.IGNORE, null),
    primaryKey: [{ 'gid': Long.fromNumber(8) }, { 'uid': Long.fromNumber(80) }]
};
client.deleteRow(params, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

For the detailed sample code, visit DeleteRow@GitHub.

Multi-row operations

Tablestore SDK for Node.js provides multi-row operations, such as BatchGetRow, BatchWriteRow, and GetRange.

BatchGetRow

You can call this operation to simultaneously read multiple rows of data from one or more tables.

The BatchGetRow operation is a set of multiple GetRow operations. The execution, returning of results, and capacity unit (CU) consumption of each individual operation are carried out independently.

Compared with the execution of a large number of GetRow operations, the use of BatchGetRow can reduce the response time for requests and increase the data read rate.

- API operation

```
/**
 * Simultaneously read multiple rows of data from one or more tables.
 */
batchGetRow(params, callback)
```

- Examples

  The following code provides an example of how to simultaneously read multiple rows of data from multiple tables, and retry the operation if an error occurs in the read of a single row:

  > **Note** You can use conditional statements to filter the returned results of BatchWriteRow operations.

```
var client = require('./client');
var TableStore = require('../index.js');
var Long = TableStore.Long;
var params = {
    tables: [{
        tableName: 'sampleTable',
        primaryKey: [
```

```
        primaryKey: [
            [{ 'gid': Long.fromNumber(20013) }, { 'uid': Long.fromNumber(20013) }],
            [{ 'gid': Long.fromNumber(20015) }, { 'uid': Long.fromNumber(20015) }]
        ],
        startColumn: "col2",
        endColumn: "col4"
    },
    {
        tableName: 'notExistTable',
        primaryKey: [
            [{ 'gid': Long.fromNumber(10001) }, { 'uid': Long.fromNumber(10001) }]
        ]
    }
    ],
};
var maxRetryTimes = 3;
var retryCount = 0;
function batchGetRow(params) {
    client.batchGetRow(params, function (err, data) {
        if (err) {
            console.log('error:', err);
            return;
        }
        var isAllSuccess = true;
        var retryRequest = { tables: [] };
        for (var i = 0; i < data.tables.length; i++) {
            var faildRequest = { tableName: data.tables[i][0].tableName, primaryKey: [] }
;
            for (var j = 0; j < data.tables[i].length; j++) {
                if (!data.tables[i][j].isOk && null != data.tables[i][j].primaryKey) {
                    isAllSuccess = false;
                    var pks = [];
                    for (var k in data.tables[i][j].primaryKey) {
                        var name = data.tables[i][j].primaryKey[k].name;
                        var value = data.tables[i][j].primaryKey[k].value;
                        var kp = {};
                        kp[name] = value;
                        pks.push(kp);
                    }
                    faildRequest.primaryKey.push(pks);
                } else {
                    // get success data
                }
            }
            if (faildRequest.primaryKey.length > 0) {
                retryRequest.tables.push(faildRequest);
            }
        }
        if (!isAllSuccess && retryCount++ < maxRetryTimes) {
            batchGetRow(retryRequest);
        }
        console.log('success:', data);
    });
}
batchGetRow(params, maxRetryTimes);
```

```
```

For the detailed sample code, visit BatchGetRow@GitHub.

BatchWriteRow

You can call this operation to simultaneously insert, modify, or delete multiple rows of data in one or more tables.

The BatchWriteRow operation is a set of multiple PutRow, UpdateRow, and DeleteRow operations. The execution, returning of results, and CU consumption of each individual operation are carried out independently.

- API operation

```
/**
 * Simultaneously modify multiple rows of data.
 */
batchWriteRow(params, callback)
```

- Examples

  The following code provides an example of how to simultaneously write multiple rows of data:

  > **Note** You can use conditional statements to filter the returned results of BatchWriteRow operations.

```
var client = require('./client');
var TableStore = require('../index.js');
var Long = TableStore.Long;
var params = {
    tables: [{
        tableName: 'sampleTable',
        rows: [{
            type: 'PUT',
            condition: new TableStore.Condition(TableStore.RowExistenceExpectation.IGNORE
, null),
            primaryKey: [{ 'gid': Long.fromNumber(8) }, { 'uid': Long.fromNumber(80) }],
            attributeColumns: [{ 'attrCol1': 'test1' }, { 'attrCol2': 'test2' }],
            returnContent: { returnType: TableStore.ReturnType.Primarykey }
        }],
    }],
};
client.batchWriteRow(params, function (err, data) {
    if (err) {
        console.log('error:', err);
        return;
    }
    console.log('success:', data);
});
```

For the detailed sample code, visit BatchWriteRow@GitHub.

GetRange

You can call this operation to read data within a specified primary key range.

- API operation

```
/**
 * Read data within the specified primary key range.
 */
getRange(params, callback)
```

- Examples

  The following code provides an example on how to read data within a specified range:

  > **Note**
  > - You can use conditional statements to filter the data read from a specified range.
  > - Note that the data may be paged when you perform the GetRange operation.

```
var Long = TableStore.Long;
var client = require('./client');
var params = {
  tableName: "sampleTable",
  direction: TableStore.Direction.FORWARD,
  inclusiveStartPrimaryKey: [{ "gid": TableStore.INF_MIN }, { "uid": TableStore.INF_MIN }
],
  exclusiveEndPrimaryKey: [{ "gid": TableStore.INF_MAX }, { "uid": TableStore.INF_MAX }],
  limit: 50
};
client.getRange(params, function (err, data) {
  if (err) {
    console.log('error:', err);
    return;
  }
  //If the value of data.next_start_primary_key is not null, the read operation is contin
ued.
  if (data.next_start_primary_key) {
  }
  console.log('success:', data);
});
```

  For the detailed sample code, visit GetRange@GitHub.

7.1.2.1.4.6. Error handling

This topic describes the error handling methods and retry policies in Tablestore SDK for Node.js.

Methods

Tablestore SDK for Node.js handles errors as exceptions. If the operation succeeds, the called operation does not return an exception. If the operation fails, an exception is returned.

> **Note** Batch operations such as BatchGetRow and BatchWriteRow can be called only after the system verifies that no exception is returned and that the status of each row is successful.

Exceptions

All errors are handled by Tablestore SDK for Node.js in a unified manner, and are returned as the value of the err parameter by using the callback method. Before you obtain the returned data, you must check whether the err parameter has a value. If an error occurs at the server side of Tablestore, the request ID is returned. The request ID is the UUID that identifies a request. If you cannot solve the problem, record this request ID and contact Tablestore technical support for help.

Retry

The system automatically retries the operation when an error occurs in the SDK. The default policy sets a maximum of 20 retry attempts and a maximum retry interval of 3000 ms. For more information about how the system retries the operation on throttling errors and read-related internal server errors, see `tablestore/lib/retry.js`.

7.1.2.1.5. .NET SDK

7.1.2.1.5.1. Preface

This topic describes how to use Tablestore SDK for .NET.

Prerequisites

An authorized account is created, and an AccessKey pair (AccessKey ID and AccessKey secret) is obtained. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

Download Tablestore SDK for .NET

- Download the SDK installation package from NuGet. For more information about the download path, visit https://www.nuget.org/packages/Aliyun.TableStore.SDK/4.1.4.
- Download the source code from GitHub. For more information about the download path, visit GitHub.

Compatibility

For SDKs V3.x.x: compatible.

For SDKs V2.x.x:

- Some operations are incompatible. The Condition.IGNORE, Condition.EXPECT_EXIST, and Condition.EXPECT_NOT_EXIST parameters are deleted.
- The DLL file name is changed from Aliyun.dll to Aliyun.TableStore.dll.

Version

Latest version: 4.1.4.

7.1.2.1.5.2. Installation

This topic describes how to install Tablestore SDK for .NET.

Version dependency

Windows

- .NET 4.0 or later is required.
- Visual Studio 2010 or later is required.

Install Tablestore SDK for .NET in Windows

- Install by using NuGet
  i. After you install NuGet, create a project or open an existing project in Visual Studio, and then choose **Tools > NuGet Package Manager > Manage NuGet Packages for Solution**.

  > **Note** If Visual Studio does not have NuGet installed, download and install NuGet. For more information about the download path, visit NuGet.

  ii. Enter aliyun.tablestore in the search box and click Search. Find Aliyun.TableStore.SDK in the search results.
  iii. Select the latest version, and click **Install**.

  After the installation is complete. Tablestore SDK for .NET is added to the project for application.
- Install by importing a project
  i. Download the source code from GitHub. For more information about the download path, visit GitHub.

  > **Note** If Git is not installed, download and install Git. For more information about the download path, visit git.

  ii. In Visual Studio, right-click and select **Solution** from the menu that appears, choose **Add > Existing projects**.
  iii. In the dialog box that appears, select the *aliyun-tablestore-sdk.csproj* file, and click **Open**.
  iv. Right-click and select **Your project**. Choose **References > Add Reference** from the shortcut menu. In the dialog box that appears, click the **Projects** tab, and select the aliyun-tablestore-sdk project.
  v. Click **OK**.

7.1.2.1.5.3. Initialization

TableStoreClient provides a series of methods for users to manage tables and perform read/write operations on one or more rows.

Obtain an endpoint

An endpoint is the domain name that is used to access a Tablestore instance within a region. To query an endpoint, perform the following operations:

1. Log on to the Tablestore console.
2. Click the instance name to go to the **Instance Management** page.

   On the Instance Details page, you can view the endpoints of an instance in Instance Access URL.

Configure an AccessKey pair

To access Apsara Stack Tablestore, you must have a valid AccessKey pair (AccessKey ID and AccessKey secret) for signature authentication.

After you obtain the AccessKey pair, you can perform the following operation to initialize an OTSClient instance by using an endpoint:

- API operation

```
    /// <summary>
    /// OTSClient constructor.
    /// </summary>
    /// <param name="endPoint">The endpoint of the Tablestore instance. Example: https://
instance.cn-hangzhou.ots.aliyun.com:80. It must start with https://. </param>
    /// <param name="accessKeyID">The AccessKey ID to access the Tablestore instance. You
can apply for an AccessKey ID on the Alibaba Cloud official website. </param>
    /// <param name="accessKeyID">The AccessKey secret that is used to access the Tablest
ore instance. You can apply for an AccessKey secret on the Alibaba Cloud official website
. </param>
    /// <param name="instanceName">The name of the Tablestore instance. You can create an
instance name in the Tablestore console. </param>
public OTSClient(string endPoint, string accessKeyID, string accessKeySecret, string inst
anceName);
    /// <summary>
    /// Create an OTSClient instance by configuring the instance of the OTSClientConfig c
lass.
    /// </summary>
    /// <param name="config">The instance for client configurations.</param>
    public OTSClient(OTSClientConfig config);
```

- Examples

> **Note**
>
> - You can set the ConnectionLimit parameter in the OTSClientConfig instance. If you do not specify the value of the ConnectionLimit parameter, the default value 300 is used.
> - You can set OTSDebugLogHandler and OTSErrorLogHandler in OTSClientConfig to specify whether to enable logging.
> - The retry logic is customizable and controlled by RetryPolicy in OTSClientConfig. A default retry policy is provided.

```
    // Create an OTSClientConfig instance.
    var config = new OTSClientConfig(Endpoint, AccessKeyId, AccessKeySecret, InstanceName
);
    // Disable logging. By default, logging is enabled.
    config.OTSDebugLogHandler = null;
    config.OTSErrorLogHandler = null;
    // Create an OTSClient instance by using OTSClientConfig.
    var otsClient = new OTSClient(config);
    // Use OTSClient to insert or query data.
```

Multithreading

- Multithreading is supported.
- We recommend that you use the same OTSClient instance to perform multithreading tasks.

7.1.2.1.5.4. Use the SDK

Table-level operations

Tablestore SDK for .NET provides the following table-level operations: CreateTable, ListTable, DeleteTable, UpdateTable, and DescribeTable.

CreateTable

You can call this operation to create a table based on the specified table structure.

> **Note**
> - After the table is created, it takes several seconds to load the table. During this period, read and write operations on the table may fail. You can use applications to perform operations on the table data only after the table is loaded.
> - You must specify the primary key when you create a table. A primary key contains one to four primary key columns. Each primary key column has a name and a data type.

- API operation

```
/// <summary>
 /// Create a table based on table information including the table name, primary key sche
ma, and reserved read/write throughput.
 /// </summary>
 /// <param name="request">Request parameter</param>
 /// <returns>Information returned by CreateTable. The result is null.
 /// </returns>
        public CreateTableResponse CreateTable(CreateTableRequest request);
        /// <summary>
        /// Asynchronous mode of CreateTable.
        /// </summary>
        public Task<CreateTableResponse> CreateTableAsync(CreateTableRequest request);
```

- Examples

  The following code provides an example on how to create a table that contains two primary key columns and a reserved read/write throughput of (0,0):

```
 //Create a schema for the primary key columns, which includes the quantity, names, and t
ypes of primary key columns.
 //The first primary key column is named pk0, and is also the partition column.
 //The second primary key column is named pk1, and requires a string value.
 var primaryKeySchema = new PrimaryKeySchema();
 primaryKeySchema.Add("pk0", ColumnValueType.Integer);
 primaryKeySchema.Add("pk1", ColumnValueType.String);
 //Create a tableMeta class based on the table name and the schema for primary key column
s.
 var tableMeta = new TableMeta("SampleTable", primaryKeySchema);
 // Set the reserved read throughput and reserved write throughput to 0.
 var reservedThroughput = new CapacityUnit(0, 0);
 try
 {
     // Construct the CreateTableRequest object.
     var request = new CreateTableRequest(tableMeta, reservedThroughput);
     // Call the CreateTable operation of the client. If the table is created, no excepti
on is returned. Otherwise, an exception is returned.
     otsClient.CreateTable(request);
     Console.WriteLine("Create table succeeded.") ;
 }
 // If the task fails, an exception is returned and handled.
 catch (Exception ex)
 {
     Console.WriteLine("Create table failed, exception:{0}", ex.Message);
 }
```

For the detailed sample code, visit CreateTable@GitHub.

ListTable

You can call this operation to query the names of all tables created in the current instance.

- API operation

```
 /// <summary>
 /// Query the names of all tables created in the current instance.
 /// </summary>
 /// <param name="request">Request parameter</param>
 /// <returns>Information returned by ListTable that contains the table name list.</retur
ns> </returns>
 public ListTableResponse ListTable(ListTableRequest request);
 /// <summary>
 /// Asynchronous mode of ListTable.
 /// </summary>
 public Task<ListTableResponse> ListTableAsync(ListTableRequest request);
```

- Examples

  The following code provides an example on how to obtain the names of all tables in the current instance:

```
var request = new ListTableRequest();
try
{
    var response = otsClient.ListTable(request);
    foreach (var tableName in response.TableNames)
    {
        Console.WriteLine("Table name:{0}", tableName);
    }
    Console.Writeline("List table succeeded.");
}
catch (Exception ex)
{
    Console.WriteLine("List table failed, exception:{0}", ex.Message);
}
```

UpdateTable

You can call this operation to update the settings of reserved read/write throughput of a table.

- API operation

```
/// <summary>
/// Update the reserved read/write throughput settings of the specified table. New setti
ngs take effect within a minute after the update succeeds.
/// </summary>
/// <param name="request">Request parameter, including the table name and reserved read/
write throughput.</param>
/// <returns>Contains information such as the updated reserved read/write throughput.</r
eturns>
public UpdateTableResponse UpdateTable(UpdateTableRequest request);
/// <summary>
/// Asynchronous mode of UpdateTable.
/// </summary>
public Task<UpdateTableResponse> UpdateTableAsync(UpdateTableRequest request);
```

- Examples

  The following code provides an example on how to update the numbers of read capacity units (CUs) of a table to 1 and write CUs to 2:

```
// Update the reserved read throughput to 1 and the reserved write throughput to 2.
var reservedThroughput = new CapacityUnit(1, 2);
// Construct an UpdateTableRequest object.
var request = new UpdateTableRequest("SampleTable", reservedThroughput);
try
{
    // Call the API to update the reserved read/write throughput of the table.
    otsClient.UpdateTable(request);
    // If the task succeeds, no exception is returned.
    Console.Writeline("Update table succeeded.");
}
catch (Exception ex)
{
    // If the task fails, an exception is returned and handled.
    Console.WriteLine("Update table failed, exception:{0}", ex.Message);
}
```

For the detailed sample code, visit UpdateTable@GitHub.

DescribeTable

You can call this operation to query the structure information and reserved read/write throughput value of the specified table.

- API operation

```
/// <summary>
/// Query the structure information and reserved read/write throughput settings of the s
pecified table.
/// </summary>
/// <param name="request">Request parameter, including the table name.</param>
/// <returns>Contains the structure information and reserved read/write throughput setti
ngs of the specified table.</returns> </returns>
public DescribeTableResponse DescribeTable(DescribeTableRequest request);
/// <summary>
/// Asynchronous mode of DescribeTable.
/// </summary>
public Task<DescribeTableResponse> DescribeTableAsync(DescribeTableRequest request);
```

- Examples

  The following code provides an example on how to obtain the description of a table:

```
 try
 {
     var request = new DescribeTableRequest("SampleTable");
     var response = otsClient.DescribeTable(request);
     //Display the descriptive information of the specified table.
     Console.Writeline("Describe table succeeded.") ;
     Console.WriteLine("LastIncreaseTime: {0}", response.ReservedThroughputDetails.LastIn
creaseTime);
     Console.WriteLine("LastDecreaseTime: {0}", response.ReservedThroughputDetails.LastDe
creaseTime);
     Console.WriteLine("NumberOfDecreaseToday: {0}", response.ReservedThroughputDetails.L
astIncreaseTime);
     Console.WriteLine("ReadCapacity: {0}", response.ReservedThroughputDetails.CapacityUn
it.Read);
     Console.WriteLine("WriteCapacity: {0}", response.ReservedThroughputDetails.CapacityU
nit.Write);
 }
 catch (Exception ex)
 {
     // If the task fails, an exception is returned and handled.
     Console.WriteLine("Describe table failed, exception:{0}", ex.Message);
        }
```

For the detailed sample code, visit DescribeTable@GitHub.

DeleteTable

You can call this operation to delete a specified table from an instance.

- API operation

```
/// <summary>
/// Delete the table of the specified name.
/// </summary>
/// <param name="request">Request parameter, including the table name.</param>
/// <returns>Information returned by DeleteTable. The result is null.
/// </returns>
public DeleteTableResponse DeleteTable(DeleteTableRequest request);
/// <summary>
/// Asynchronous mode of DeleteTable.
/// </summary>
public Task<DeleteTableResponse> DeleteTableAsync(DeleteTableRequest request);
```

- Examples

  The following code provides an example on how to delete a table:

```
var request = new DeleteTableRequest("SampleTable");
try
{
    otsClient.DeleteTable(request);
    Console.Writeline("Delete table succeeded.");
}
catch (Exception ex)
{
    Console.WriteLine("Delete table failed, exception:{0}", ex.Message);
}
```

For the detailed sample code, visit DeleteTable@GitHub.

Single-row operations

The Tablestore SDK provides the following APIs for single-row operations: PutRow, GetRow, UpdateRow, and DeleteRow.

PutRow

You can use the PutRow API to insert data into a specified row.

API

```
        /// <summary>
        /// Write a row of data based on the specified table name, primary keys, and attrib
utes. Thu number of CUs consumed by the operation is returned.
        /// </summary>
        /// <param name="request">Data insertion request</param>
        /// <returns>The number of CUs consumed by the operation</returns>
        public PutRowResponse PutRow(PutRowRequest request);
        /// <summary>
        /// Asynchronous mode of PutRow.
        /// </summary>
        public Task<PutRowResponse> PutRowAsync(PutRowRequest request);
```

Example 1

The following code provides an example of how to insert a row of data:

```
        // Define the primary keys of the row. These primary keys must be consistent with t
he primary keys defined in TableMeta during table creation.
        var primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        // Define the attribute columns of the row.
        var attribute = new AttributeColumns();
        attribute.Add("col0", new ColumnValue(0));
        attribute.Add("col1", new ColumnValue("a"));
        attribute.Add("col2", new ColumnValue(true));
        try
        {
            // Construct the request object for data insertion. RowExistenceExpectation.IGN
ORE indicates that data is inserted regardless of whether the specified row exists.
            var request = new PutRowRequest("SampleTable", new Condition(RowExistenceExpect
ation.IGNORE),
                                    primaryKey, attribute);
            // Call the PutRow API to insert data.
            otsClient.PutRow(request);
            // If task execution succeeds, no exception is thrown.
            Console.WriteLine("Put row succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Put row failed, exception:{0}", ex.Message);
        }
```

Note

- Condition.IGNORE, Condition.EXPECT_EXIST, and Condition.EXPECT_NOT_EXIST are deprecated in V3.0.0 and later. Use new Condition (RowExistenceExpectation. IGNORE), new Condition (RowExistenceExpectation.EXPECT_EXIST), and new Condition (RowExistenceExpectation. EXPECT_NOT_EXIST) instead.
- RowExistenceExpectation.IGNORE indicates that new data is inserted regardless of whether the specified row exists. If the row exists, the existing data is overwritten.
- RowExistenceExpectation.EXPECT_EXIST indicates that new data is inserted only when the specified row exists. The existing data is overwritten.
- RowExistenceExpectation.EXPECT_NOT_EXIST indicates that data is inserted only when the specified row does not exist.
- In addition to row conditions, the Condition parameter also supports column conditions in V2.2.0 and later.
- To view the detailed code, see PutRow@GitHub.

Example 2

The following code provides an example of how to insert a row of data based on specified conditions.

Assume that data is inserted only when a specified row exists and the value of col1 is greater than 24.

```
        // Define the primary keys of the row. These primary keys must be consistent with t
he primary keys defined in TableMeta during table creation.
        var primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        // Define the attribute columns of the row.
        AttributeColumns attribute = new AttributeColumns();
        attribute.Add("col0", new ColumnValue(0));
        attribute.Add("col1", new ColumnValue("a"));
        attribute.Add("col2", new ColumnValue(true));
        var request = new PutRowRequest(tableName, new Condition(RowExistenceExpectation.EX
PECT_EXIST),
                                        primaryKey, attribute);
        // When the value of col0 is greater than 24, rerun PutRow to overwrite the existin
g value.
        try
        {
            request.Condition.ColumnCondition = new RelationalCondition("col0",
                                                RelationalCondition.CompareOperator.GREATER
_THAN,
                                                new ColumnValue(24));
            otsClient.PutRow(request);
            Console.WriteLine("Put row succeeded.");
        }
        catch (Exception ex)
        {
            Console.WriteLine("Put row failed. error:{0}", ex.Message);
        }
```

Note

- You can set a single condition or a combination of conditions. For example, you can set two conditions for data insertion such as col1 > 5 and pk2 < 'xyz'.
- Attribute columns and primary key columns can be used to set conditions.
- When the column specified in a condition does not exist in a row, PassIfMissing in RelationCondition determines the next action. The default value is true.
- To view the detailed code, see ConditionPutRow@GitHub.

Example 3

The following code provides an example of how to asynchronously insert a row of data:

```
        try
        {
            var putRowTaskList = new List<Task<PutRowResponse>>();
            for (int i = 0; i < 100; i++)
            {
                // Define the primary keys of the row. These primary keys must be consisten
t with the primary keys defined in TableMeta during table creation.
                var primaryKey = new PrimaryKey();
                primaryKey.Add("pk0", new ColumnValue(i));
                primaryKey.Add("pk1", new ColumnValue("abc"));
                // Define the attribute columns of the row.
                var attribute = new AttributeColumns();
                attribute.Add("col0", new ColumnValue(i));
                attribute.Add("col1", new ColumnValue("a"));
                attribute.Add("col2", new ColumnValue(true));
                var request = new PutRowRequest(TableName, new Condition(RowExistenceExpect
ation.IGNORE),
                                                primaryKey, attribute);
                putRowTaskList.Add(TabeStoreClient.PutRowAsync(request));
            }
            // Wait until each asynchronous invocation returns results and displays the con
sumed CUs.
            foreach (var task in putRowTaskList)
            {
                task.Wait();
                Console.WriteLine("consumed read:{0}, write:{1}", task.Result.ConsumedCapac
ityUnit.Read,
                                        task.Result.ConsumedCapacityUnit.Write);
            }
            // Data is inserted if no exception is thrown.
            Console.WriteLine("Put row async succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Put row async failed. exception:{0}", ex.Message);
        }
```

Note

- Each asynchronous invocation starts a thread. A timeout error may occur if too many asynchronous invocations are started consecutively and each invocation consumes an extended period of time.
- To view the detailed code, see PutRowAsync@GitHub.

GetRow

You can use the GetRow API to read a single row of data based on a specified primary key.

API

```
        /// <summary>
        /// Read a single row of data based on a specified primary key.
        /// </summary>
        /// <param name="request">Data query request</param>
        /// <returns>Response of GetRow</returns>
        public GetRowResponse GetRow(GetRowRequest request);
        /// <summary>
        /// Asynchronous mode of GetRow.
        /// </summary>
        public Task<GetRowResponse> GetRowAsync(GetRowRequest request);
```

Example 1

The following code provides an example of how to read a row of data:

```
        // Define the primary keys of the row. These primary keys must be consistent with t
he primary keys defined in TableMeta during table creation.
        PrimaryKey primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        try
        {
            // Construct a query request object. The entire row is read if no column is spe
cified.
            var request = new GetRowRequest(TableName, primaryKey);
            // Call the GetRow API to query data.
            var response = otsClient.GetRow(request);
            // Generate the data of the row. The generated data is not shown here. For more
information, see the GitHub link.
            // If task execution succeeds, no exception is thrown.
            Console.WriteLine("Get row succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Update table failed, exception:{0}", ex.Message);
        }
```

Note

- If you query a row of data, the system returns the data in all columns of the row. You can use the columnsToGet parameter to read data from specified columns. For example, the system returns only the data in col0 and col1 if col0 and col1 are inserted into columnsToGet.
- Conditional filtering is supported. For example, you can configure the system to return results only when the value of col0 is greater than 24.
- When the columnsToGet and Condition parameters are both used, the system returns results based on columnsToGet, and then filters the returned columns by the Condition parameter.
- When the specified column does not exist, PassIfMissing determines the next action.
- To view the detailed code, see GetRow@GitHub.

Example 2

The following code provides an example of how to use the filter feature to read a row of data.

In the example, data is queried. Only data in col0 and col1 is returned. The data in col0 is filtered based on the condition of col0=24.

```
        // Define the primary keys of the row. These primary keys must be consistent with t
he primary keys defined in TableMeta during table creation.
        PrimaryKey primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        var rowQueryCriteria = new SingleRowQueryCriteria("SampleTable");
        rowQueryCriteria.RowPrimaryKey = primaryKey;
        // Condition 1: The value of col0 is 5.
        var filter1 = new RelationalCondition("col0",
                    RelationalCondition.CompareOperator.EQUAL,
                    new ColumnValue(5));
        // Condition 2: The value of col1 is not ff.
        var filter2 = new RelationalCondition("col1", RelationalCondition.CompareOperator.N
OT_EQUAL, new ColumnValue("ff"));
        // Construct a combination of Condition 1 and Condition 2 with the OR relationship.
        var filter = new CompositeCondition(CompositeCondition.LogicOperator.OR);
        filter.AddCondition(filter1);
        filter.AddCondition(filter2);
        rowQueryCriteria.Filter = filter;
        // Configure the rows you want to query with the condition [col0, col1], and then f
ilter the queried data based on the previously specified conditions.
        rowQueryCriteria.AddColumnsToGet("col0");
        rowQueryCriteria.AddColumnsToGet("col1");
        // Construct GetRowRequest.
        var request = new GetRowRequest(rowQueryCriteria);
        try
        {
            // Query data.
            var response = otsClient.GetRow(request);
            // Generate data or perform the related logical operation (omitted).
            // If task execution succeeds, no exception is thrown.
            Console.WriteLine("Get row with filter succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Get row with filter failed, exception:{0}", ex.Message);
        }
```

Note To view the detailed code, see GetRowWithFilter@GitHub.

UpdateRow

You can use the UpdateRow API to update the data of a specified row. If the row does not exist, a new row is added. If the row exists, the values of the specified columns are added, modified, or deleted based on the request content.

API

```
        /// <summary>
        /// Update the data of the specified row. If the row does not exist, a new row is a
dded. If the row exists, the values of the specified columns are added, modified, or delete
d based on the request content.
        /// </summary>
        /// <param name="request">Request instance</param>
        public UpdateRowResponse UpdateRow(UpdateRowRequest request);
        /// <summary>
        /// Asynchronous mode of UpdateRow.
        /// </summary>
        /// <param name="request"></param>
        /// <returns></returns>
        public Task<UpdateRowResponse> UpdateRowAsync(UpdateRowRequest request);
```

Examples

The following code provides an example of how to update the data of a specified row:

```
        // Define the primary keys of the row. These primary keys must be consistent with t
he primary keys defined in TableMeta during table creation.
        PrimaryKey primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        // Define the attribute columns of the row.
        UpdateOfAttribute attribute = new UpdateOfAttribute();
        attribute.AddAttributeColumnToPut("col0", new ColumnValue(0));
        attribute.AddAttributeColumnToPut("col1", new ColumnValue("b")); // Change the orig
inal value a to b.
        attribute.AddAttributeColumnToPut("col2", new ColumnValue(true));
        try
        {
            // Construct the request object for row updating. RowExistenceExpectation.IGNOR
E indicates that data is updated regardless of whether the specified row exists.
            var request = new UpdateRowRequest(TableName, new Condition(RowExistenceExpecta
tion.IGNORE),
                                       primaryKey, attribute);
            // Call the UpdateRow API to run the following line of code:
            otsClient.UpdateRow(request);
            // If task execution succeeds, no exception is thrown.
            Console.Writeline("Update row succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Update row failed, exception:{0}", ex.Message);
        }
```

> **Note**
> - You can use conditional statements to update rows.
> - To view the detailed code, see UpdateRow@GitHub.

DeleteRow

API

```
        /// <summary>
        /// Delete a row of data based on the specified table name and primary keys.
        /// </summary>
        /// <param name="request">Request instance</param>
        /// <returns>Response instance</returns>
        public DeleteRowResponse DeleteRow(DeleteRowRequest request);
        /// <summary>
        /// Asynchronous mode of DeleteRow.
        /// </summary>
        public Task<DeleteRowResponse> DeleteRowAsync(DeleteRowRequest request);
```

Examples

The following code provides an example of how to delete a row of data:

```
        // The values of the primary key columns of the row to be deleted are 0 and "abc".
        var primaryKey = new PrimaryKey();
        primaryKey.Add("pk0", new ColumnValue(0));
        primaryKey.Add("pk1", new ColumnValue("abc"));
        try
        {
            // Construct a request. Condition.EXPECT_EXIST indicates that the row is delete
d only when it exists.
            var deleteRowRequest = new DeleteRowRequest("SampleTable", Condition.EXPECT_EXI
ST, primaryKey);
            // Call the DeleteRow API to delete the row.
            otsClient.DeleteRow(deleteRowRequest);
            // If task execution succeeds, no exception is thrown.
            Console.Writeline("Delete table succeeded.");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Delete table failed, exception:{0}", ex.Message);
        }
```

> **Note**
> - You can use conditional statements to delete rows.
> - To view the detailed code, see DeleteRow@GitHub.

Multiple-row operations

The Tablestore SDK provides the following APIs for multiple-row operations: BatchGetRow, BatchWriteRow, GetRange, and GetRangeIterator.

BatchGetRow

You can use the BatchGetRow API to simultaneously read several rows of data from one or more tables.

The BatchGetRow operation is a set of multiple GetRow operations. The execution, returning of results, and capacity unit (CU) consumption of each individual operation are carried out independently.

Compared with the execution of a large number of GetRow operations, the use of BatchGetRow can reduce the request response time and increase the data read rate.

API

```
        /// <summary>
        /// <para>Simultaneously read several rows of data from one or more tables. </para>
        /// <para>The BatchGetRow operation is a set of multiple GetRow operations. The exe
cution, returning of results, and CU consumption of each individual operation are carried o
ut independently. </para>
        /// Compared with the execution of a large number of GetRow operations, the use of
BatchGetRow can reduce the request response time and increase the data read rate.
        /// </summary>
        /// <param name="request">Request instance</param>
        /// <returns>Response instance</returns>
        public BatchGetRowResponse BatchGetRow(BatchGetRowRequest request);
        /// <summary>
        /// Asynchronous mode of BatchGetRow.
        /// </summary>
        public Task<BatchGetRowResponse> BatchGetRowAsync(BatchGetRowRequest request);
```

Examples

The following code provides an example of how to simultaneously read 10 rows of data:

```
        // Construct a batch-read request object, including the primary key values of the 1
0 rows.
        List<PrimaryKey> primaryKeys = new List<PrimaryKey>();
        for (int i = 0; i < 10; i++)
        {
            PrimaryKey primaryKey = new PrimaryKey();
            primaryKey.Add("pk0", new ColumnValue(i));
            primaryKey.Add("pk1", new ColumnValue("abc"));
            primaryKeys.Add(primaryKey);
        }
        try
        {
            BatchGetRowRequest request = new BatchGetRowRequest();
            request.Add(TableName, primaryKeys);
            // Call BatchGetRow to read 10 rows of data.
            var response = otsClient.BatchGetRow(request);
            var tableRows = response.RowDataGroupByTable;
            var rows = tableRows[TableName];
            // Enter the input data for the rows. The input data is not shown here. For mor
e information, see the GitHub link.
            // BatchGetRow may partially fail. Therefore, you must check the status of each
row. For more information, see the GitHub link.
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Batch get row failed, exception:{0}", ex.Message);
        }
```

Note

- You can use conditional statements to filter the results returned by a BatchGetRow operation.
- To view the detailed code, see BatchGetRow@GitHub.

BatchWriteRow

You can use the BatchWriteRow API to insert, modify, or delete several rows of data in one or more tables.

The BatchWriteRow operation is a set of multiple PutRow, UpdateRow, and DeleteRow operations. The execution, returning of results, and CU consumption of each individual operation are carried out independently.

API

```
        /// <summary>
        /// <para>You can use the BatchWriteRow API to insert, modify, or delete several ro
ws of data in one or more tables. </para>
        /// <para>The BatchWriteRow operation is a set of multiple PutRow, UpdateRow, and D
eleteRow operations. The execution, returning of results, and CU consumption of each indivi
dual operation are carried out independently. </para>
        /// <para>Compared with the execution of a large number of write operations, the us
e of BatchWriteRow can reduce the request response time and increase the data write rate. <
/para>
        /// </summary>
        /// <param name="request">Request instance</param>
        /// <returns>Response instance</returns>
        public BatchWriteRowResponse BatchWriteRow(BatchWriteRowRequest request);
        /// <summary>
        /// Asynchronous mode of BatchWriteRow.
        /// </summary>
        /// <param name="request"></param>
        /// <returns></returns>
        public Task<BatchWriteRowResponse> BatchWriteRowAsync(BatchWriteRowRequest request)
;
```

Examples

The following code provides an example of how to simultaneously import 100 rows of data:

```
        // Construct a batch-import request object, including the primary key values of the
100 rows.
        var request = new BatchWriteRowRequest();
        var rowChanges = new RowChanges();
        for (int i = 0; i < 100; i++)
        {
            PrimaryKey primaryKey = new PrimaryKey();
            primaryKey.Add("pk0", new ColumnValue(i));
            primaryKey.Add("pk1", new ColumnValue("abc"));
            // Define the attribute columns of the 100 rows.
            UpdateOfAttribute attribute = new UpdateOfAttribute();
            attribute.AddAttributeColumnToPut("col0", new ColumnValue(0));
            attribute.AddAttributeColumnToPut("col1", new ColumnValue("a"));
            attribute.AddAttributeColumnToPut("col2", new ColumnValue(true));
            rowChanges.AddUpdate(new Condition(RowExistenceExpectation.IGNORE), primaryKey,
attribute);
        }
        request.Add(TableName, rowChanges);
        try
        {
            // Call the BatchWriteRow API.
            var response = otsClient.BatchWriteRow(request);
            var tableRows = response.TableRespones;
            var rows = tableRows[TableName];
            // BatchWriteRow may partially fail. Therefore, you must check the status of ea
ch row. For more information, see the GitHub link.
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Batch put row failed, exception:{0}", ex.Message);
        }
```

Note

- You can use conditional statements to filter the results returned by a BatchWriteRow operation.
- To view the detailed code, see BatchWriteRow@GitHub.

GetRange

You can use the GetRange API to read data within the specified primary key range.

API

```
        /// <summary>
        /// Obtain data from multiple rows within a specified range.
        /// </summary>
        /// <param name="request">Request instance</param>
        /// <returns>Response instance</returns>
        public GetRangeResponse GetRange(GetRangeRequest request);
        /// <summary>
        /// Asynchronous mode of GetRange.
        /// </summary>
        /// <param name="request"></param>
        /// <returns></returns>
        public Task<GetRangeResponse> GetRangeAsync(GetRangeRequest request);
```

Examples

The following code provides an example of how to read data within the specified range:

```
        // Read all rows in the range from (0, INF_MIN) to (100, INF_MAX).
        var inclusiveStartPrimaryKey = new PrimaryKey();
        inclusiveStartPrimaryKey.Add("pk0", new ColumnValue(0));
        inclusiveStartPrimaryKey.Add("pk1", ColumnValue.INF_MIN);
        var exclusiveEndPrimaryKey = new PrimaryKey();
        exclusiveEndPrimaryKey.Add("pk0", new ColumnValue(100));
        exclusiveEndPrimaryKey.Add("pk1", ColumnValue.INF_MAX);
        try
        {
            // Construct a read request object in the specified range.
            var request = new GetRangeRequest(TableName, GetRangeDirection.Forward,
                            inclusiveStartPrimaryKey, exclusiveEndPrimaryKey);
            var response = otsClient.GetRange(request);
            // Continue the read operation if only partial data is returned.
            var rows = response.RowDataList;
            var nextStartPrimaryKey = response.NextPrimaryKey;
            while (nextStartPrimaryKey != null)
            {
                request = new GetRangeRequest(TableName, GetRangeDirection.Forward,
                                nextStartPrimaryKey, exclusiveEndPrimaryKey);
                response = otsClient.GetRange(request);
                nextStartPrimaryKey = response.NextPrimaryKey;
                foreach (RowDataFromGetRange row in response.RowDataList)
                {
                    rows.Add(row);
                }
            }
            // Generate the data of the rows. The generated data is not shown here. For mor
e information, see the GitHub link.
            // If task execution succeeds, no exception is thrown.
            Console.WriteLine("Get range succeeded");
        }
        catch (Exception ex)
        {
            // If task execution fails, an exception is thrown and an error message is disp
layed.
            Console.WriteLine("Get range failed, exception:{0}", ex.Message);
        }
```

> **Note**
>
> - You can use conditional statements to filter the read data returned from the specified range.
> - To view the detailed code, see GetRange@GitHub.

GetRangeIterator

You can use the GetRangeIterator API to obtain an iterator within the specified range.

API

```
        /// <summary>
        /// Obtain data from multiple rows within the specified range. Return the iterator
used to process each row of data.
        /// </summary>
        /// <param name="request"><see cref="GetIteratorRequest"/></param>
        /// <returns>Return the <see cref="RowDataFromGetRange"/> iterator. </returns>
        public IEnumerable<RowDataFromGetRange> GetRangeIterator(GetIteratorRequest request
);
```

Examples

The following code provides an example of how to obtain an iterator:

```
        // Read all rows in the range from (0, "a") to (1000, "xyz").
        PrimaryKey inclusiveStartPrimaryKey = new PrimaryKey();
        inclusiveStartPrimaryKey.Add("pk0", new ColumnValue(0));
        inclusiveStartPrimaryKey.Add("pk1", new ColumnValue("a"));
        PrimaryKey exclusiveEndPrimaryKey = new PrimaryKey();
        exclusiveEndPrimaryKey.Add("pk0", new ColumnValue(1000));
        exclusiveEndPrimaryKey.Add("pk1", new ColumnValue("xyz"));
        // Construct a CapacityUnit to record the number of CUs consumed by iteration.
        var cu = new CapacityUnit(0, 0);
        try
        {
            // Construct a GetIteratorRequest. Filter conditions are supported.
            var request = new GetIteratorRequest(TableName, GetRangeDirection.Forward, incl
usiveStartPrimaryKey,
                                                 exclusiveEndPrimaryKey, cu);
            var iterator = otsClient.GetRangeIterator(request);
            // Iterator that reads data in a traversal method.
            foreach (var row in iterator)
            {
                // Processing logic.
            }
            Console.WriteLine("Iterate row succeeded");
        }
        catch (Exception ex)
        {
            Console.WriteLine("Iterate row failed, exception:{0}", ex.Message);
        }
```

> **Note**
>
> - You can use conditional statements to filter the data read through an iterator.
> - To view the detailed code, see GetRangeIterator@GitHub.

7.1.2.1.5.5. Error handling

This topic describes the error handling methods and retry policies in Tablestore SDK for .NET.

Method

The Tablestore .NET SDK adopts the Exception method to handle errors. If an operation succeeds, the called API does not throw an exception. If the operation fails, an exception is thrown.

> **Note** Batch operation APIs such as BatchGetRow and BatchWriteRow are called only when the status check of each row is successful.

Error

The Tablestore .NET SDK has two types of exceptions: OTSClientException and OTSServerException. Both are inherited from Exception.

- OTSClientException: indicates an internal SDK exception, such as an incorrect parameter value or a failure to parse the results returned by the server.
- OTSServerException: indicates a server error arising from the resolution of a server error message. OTSServerException has the following components:
  - HttpStatusCode: an HTTP status code, such as 200 or 404.
  - ErrorCode: an error type string returned by Tablestore.
  - ErrorMessage: an error message string returned by Tablestore.
  - RequestId: the UUID that uniquely identifies a request. If a problem persists, submit the request ID to Tablestore technical support personnel to obtain help.

Retry

- The system retries an operation when an error occurs in the SDK. The operation is retried three times at a maximum interval of two seconds by default. For more information, see the Aliyun.OTS.Retry.DefaultRetryPolicy class.
- You can modify RetryPolicy in OTSClientConfig to customize a retry policy.

7.1.2.1.6. Obtain an AccessKey pair

An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey pair is used to implement symmetric encryption to verify the identity of the requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

Only operations administrators and level-1 organization administrators can obtain the AccessKey pair of an organization.

Obtain the AccessKey pair of an organization

To obtain the AccessKey pair of an organization, perform the following operations:

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 8 to 20 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Login**.
4. In the top navigation bar, click **Enterprise**.
5. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
6. In the organization navigation tree, click an organization name.
7. In the Current Organization section, click **Obtain an accesskey**.
8. In the AccessKey message, view the AccessKey pair of the organization.

> **Note** An AccessKey pair is automatically allocated to each level-1 organization. Subordinate organizations use the same AccessKey pair of their level-1 organization.

Obtain the AccessKey pair of a personal account

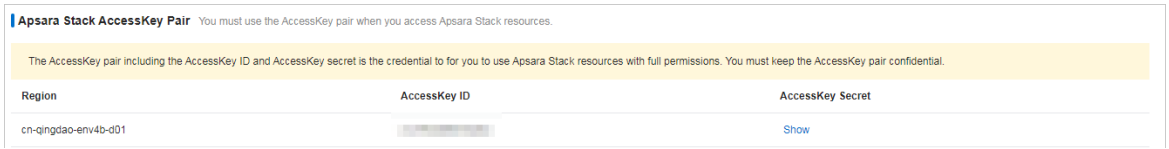
To obtain the AccessKey pair of a personal account, perform the following steps:

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 8 to 20 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Login**.
4. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
5. In the **Apsara Stack AccessKey Pair** section, view your AccessKey pair.



> **Note** The AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs of accounts grant you full permissions to access Apsara Stack resources. You must keep your AccessKey pair confidential.

8.ApsaraDB RDS

8.1. Developer Guide

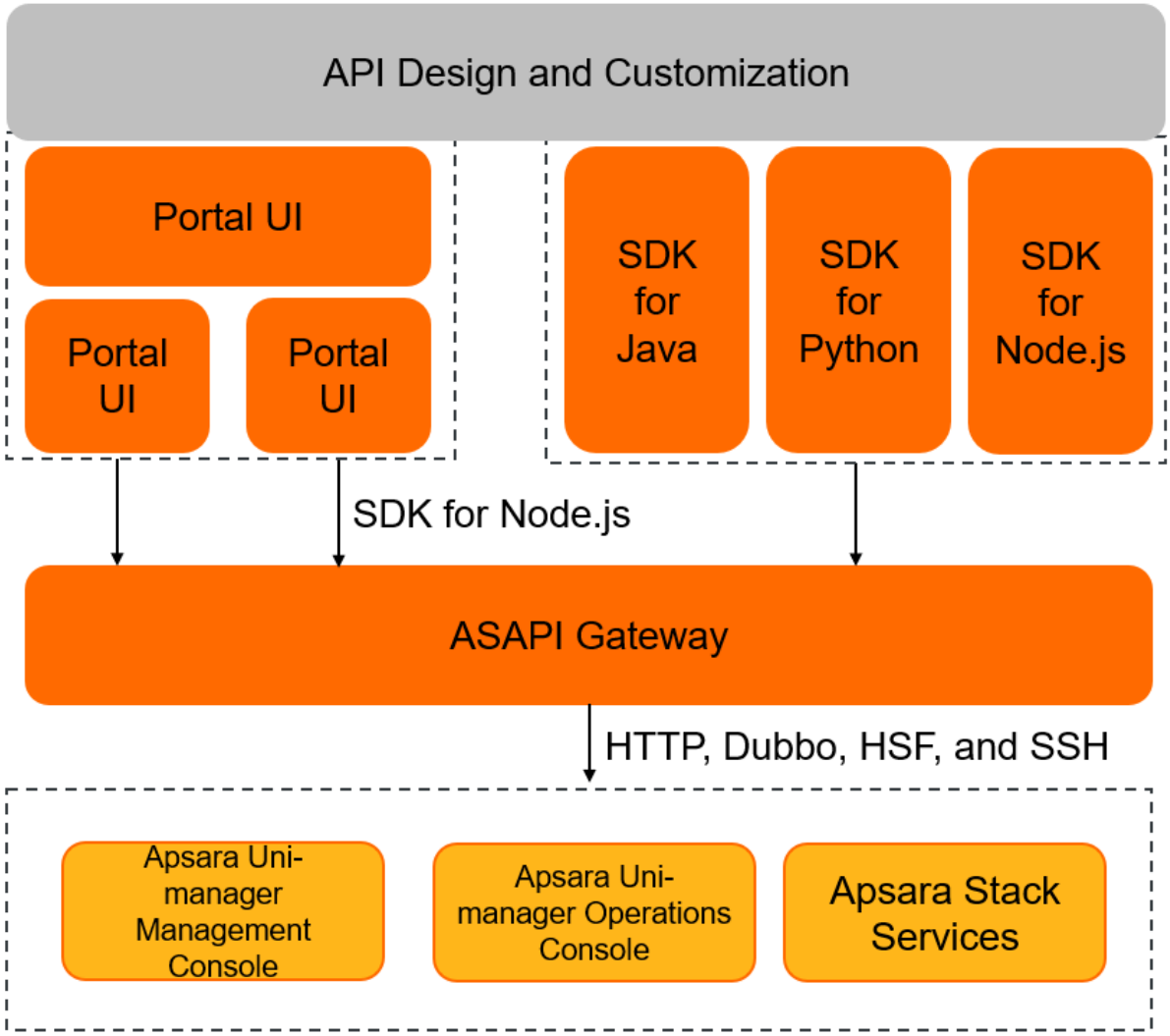
8.1.1. Use ASAPI to call Apsara Stack SDKs

8.1.1.1. 文档标题缺失，请补全后重新导出

8.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

8.1.1.1.2. Preparations

8.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

8.1.1.1.2.2. View information about API operations

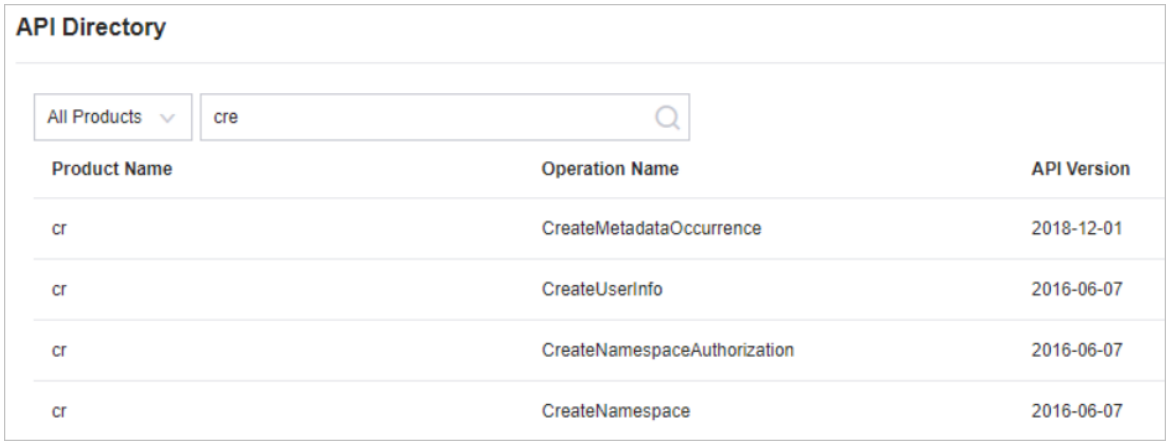
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



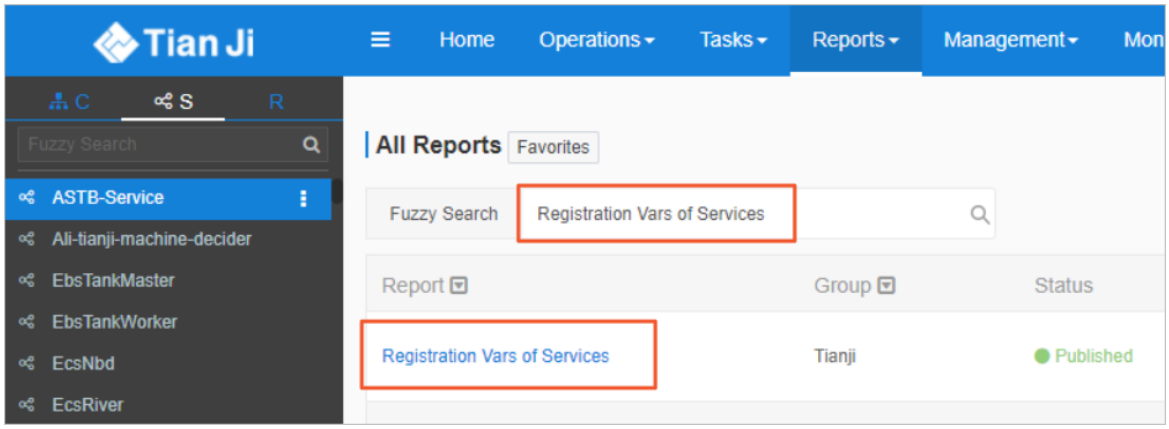
4. Then, you can view the service name, API operation name, and API operation version.

8.1.1.1.2.3. Generate an endpoint for the ASAPI

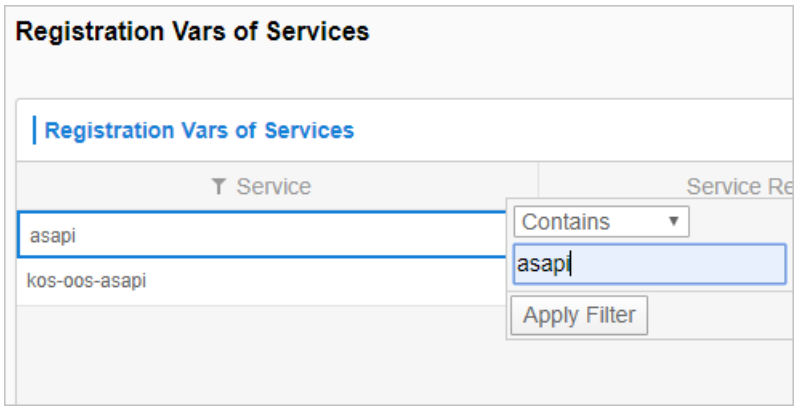
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

8.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

8.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

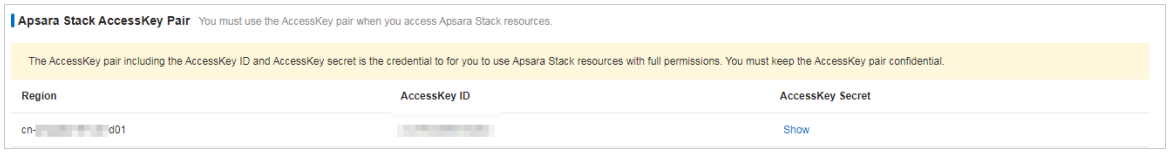
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

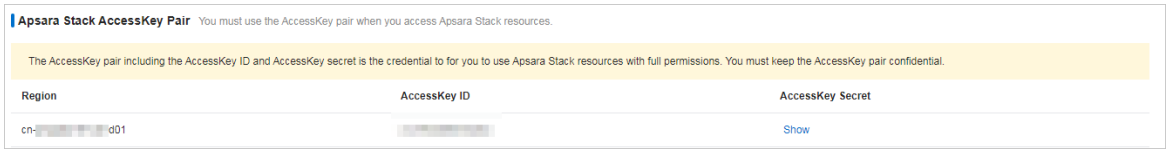
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

8.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



8.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

8.1.1.1.4. SDK description

8.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

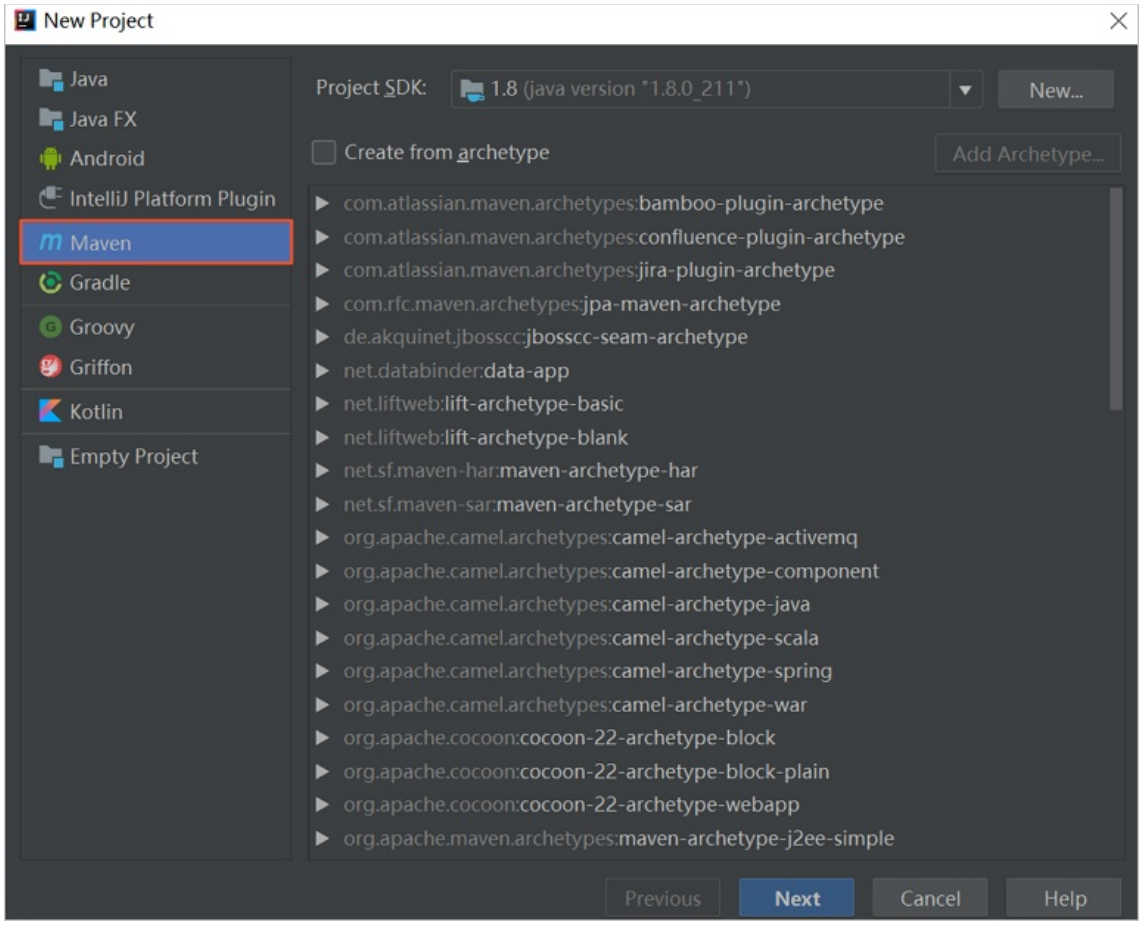
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

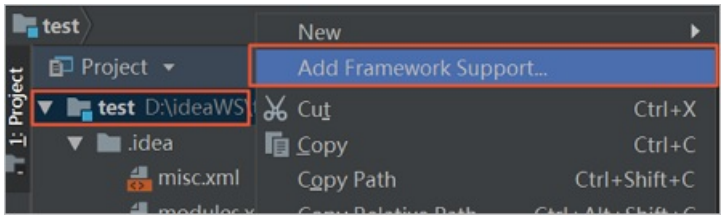
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

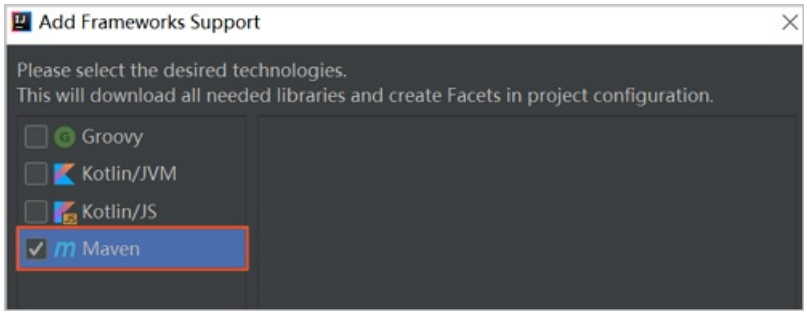
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



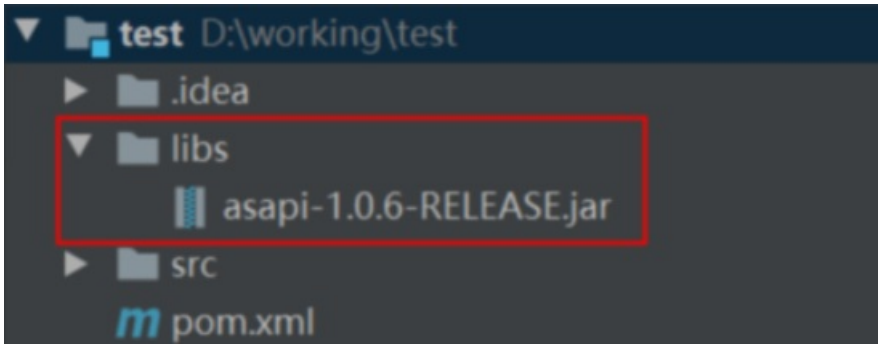
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



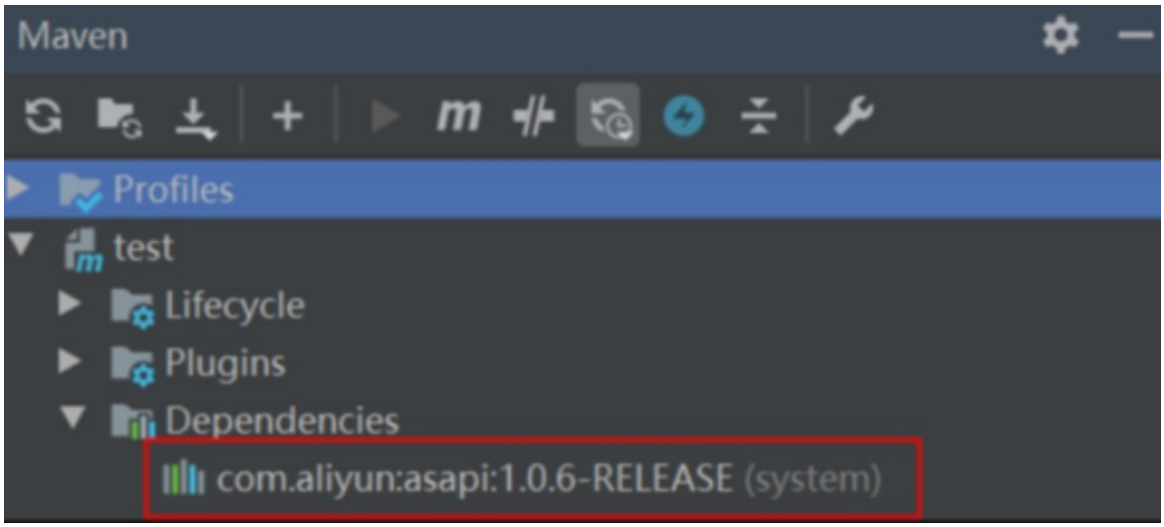
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

8.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

8.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

8.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

8.1.1.1.5. HTTP requests

8.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

8.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

8.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D` .

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

8.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

8.1.2. API reference

8.1.2.1. Instance management

8.1.2.1.1. CreateDBInstance

Description

Creates an ApsaraDB RDS instance. For information about instance types, see Instance types in Appendix.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateDBInstance.
RegionId	String	Yes	The region ID of the instance. It can be up to 50 characters in length. You can call the DescribeRegions operation to query the most recent region list.
ZoneId	String	No	The zone ID of the instance. You can call the DescribeRegions operation to query the most recent zone list.
Engine	String	Yes	The engine of the database. Valid values: • MySQL • SQLServer • PostgreSQL • POLARDB
EngineVersion	String	Yes	The engine version of the database. Valid values: • MySQL: 5.6, 5.7, and 8.0 • SQL Server: 2008 R2, 2012_ent_ha, 2012_std_ha, 2016_ent_ha, and 2016_std_ha • PostgreSQL: 9.4 and 10.0 • PolarDB: 11
DBInstanceClass	String	Yes	The instance type.
DBInstanceStorage	Integer	Yes	The user-defined storage space. Valid values: MySQL High-availability Edition: 5 to 2000 PolarDB High-availability Edition: 5 to 2000 This value must be in 5 GB increments. Unit: GB.
DBInstanceNetType	String	Yes	The network connection type of the instance. Valid values: • Internet • Intranet
DBInstanceDescription	String	No	The description of the instance. It must be 2 to 256 bytes in length , https:// and can contain letters, digits, underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.

Parameter	Type	Required	Description
SecurityIPList	String	Yes	The IP addresses that are allowed to access all databases on the instance. You can add a maximum of 1,000 IP addresses and separate them with commas (,). Format: %, 0.0.0.0/0, IP address (example: 10.23.12.24), or CIDR block (example: 10.23.12.24/24). /24 indicates that the prefix of each IP address is 24-bit long. You can replace 24 with a value within the range of 1 to 32. 0.0.0.0/0 indicates that the instance can be accessed by all devices.
ClientToken	String	Yes	The client token that is used to ensure the idempotence of the request.
InstanceNetworkType	String	No	The network type of the instance. Valid values: VPC and Classic. Default value: Classic.
ConnectionMode	String	No	The access mode of the instance. Valid values: Performance and Safe. If no value is specified, the system assigns an access mode.
VPCId	String	No	The ID of the VPC.
VSwitchId	String	No	The ID of the vSwitch.
PrivateIpAddress	String	No	The VPC IP address that belongs to the specified vSwitch. If no value is specified, the system assigns a VPC IP address.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
DBInstanceId	String	The ID of the instance.
OrderId	String	The ID of the order.
ConnectionString	String	The endpoint that is used to connect to the database.
Port	String	The port that is used to connect to the database.

Examples

- XML format

  Sample success responses

```
<CreateDBInstanceResponse>
<OrderId>100789370xxxxx</OrderId>
<ConnectionString>xxxxx.mysql.rds.aliyuncs.com </ConnectionString>
<DBInstanceId>rds-xxxxx</DBInstanceId>
<port>3306</port>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CreateDBInstanceResponse>
```

- JSON format

```
{ "OrderId": "100789370230206",
"ConnectionString": "rds-xxxxx.mysql.rds.aliyuncs.com",
"DBInstanceId": "rds-xxxxx",
"Port": "3306",
"RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.1.2. DeleteDBInstance

Releases an ApsaraDB RDS instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The read/write splitting feature is disabled for the instance.
- The instance is a primary, read-only, disaster recovery, or temporary instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDBInstance	The operation that you want to perform. Set the value to DeleteDBInstance.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=DeleteDBInstance
&DBInstanceId=rm-uf6wjk5xxxxxxxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<DeleteDBInstanceResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</DeleteDBInstanceResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.1.3. RestartDBInstance

Restarts an ApsaraDB RDS instance.

If a large number of transactions need to be submitted or rolled back, the restart process may be delayed for a minute.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance does not have ongoing backup tasks.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RestartDBInstance	The operation that you want to perform. Set the value to RestartDBInstance.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxx	The ID of the instance.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.

Examples

Sample requests

```
http(s)://rds.example.com/?Action=RestartDBInstance
&DBInstanceId=rm-uf6wjk5xxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RestartDBInstanceResponse>
      <RequestId> 65BDA532-28AF-4122-AA39-B382721EEE64</RequestId></RestartDBInstanceRespon
se>
```

`JSON` format

```
{
    "RequestId": " 65BDA532-28AF-4122-AA39-B382721EEE64"
}
```

8.1.2.1.4. DescribeDBInstanceAttribute

Description

You can call this operation to query attributes of an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeDBInstanceAttribute.
DBInstanceId	String	Yes	The ID of the instance. Up to 30 IDs can be entered at a time. Separate multiple IDs with commas (,).

Response parameters

Parameter	Type	Example	Description
Items			The array that consists of DBInstanceAttribute data.

Parameter	Type	Example	Description
└DBInstanceId	String	rm-bpvxxxxx	The ID of the instance.
└ DBInstanceType	String	Primary	The role of the instance. Valid values: • Primary: primary instance • Readonly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance
└Category	String	Basic	The RDS edition of the instance. Valid values: • Basic: Basic Edition • Standard: High-availability Edition • Enterprise: Enterprise Edition
└InstanceNetworkType	String	Classic	The network type of the instance. Valid values: • Classic • VPC
└RegionId	String	cn-hangzhou	The region ID of the instance.
└ZoneId	String	cn-hangzhou-a	The zone ID of the instance.
└ConnectionString	String	rds-xxxxx.mysql.rds.aliyuncs.com	The endpoint used to connect to the instance.
└Port	String	3306	The port used to connect to the instance.
└Engine	String	MySQL	The engine of the database.
└EngineVersion	String	5.5	The engine version of the database.
└DBInstanceClassType	String	s	The family of the instance. Valid values: • s: shared instance • x: general-purpose instance • d: dedicated instance • h: dedicated host
└DBInstanceClass	String	rds.mys2.small	The type of the instance.
└DBInstanceMemory	Long	240	The memory capacity of the instance. Unit: MB.
└DBInstanceStorage	Integer	10	The storage space of the instance. Unit: GB.

Parameter	Type	Example	Description
└DBInstanceNetType	String	Internet	The network connection type of the instance. Valid values: • Internet • Intranet
└DBInstanceStatus	String	Running	The status of the instance. For more information, see Instance states in Appendix.
└DBInstanceDescription	String	Test instance	The description of the instance.
└LockMode	String	Unlock	The lock status of the instance. Valid values: • Unlock: normal • ManualLock: locked manually • LockByExpiration: locked automatically upon expiration • LockByRestoration: locked automatically before instance rollback • LockByDiskQuota: locked automatically due to full disk space
└LockReason	String	None	The reason why the instance is locked.
└DBMaxQuantity	Integer	200	The maximum number of databases that can be created for an instance.
└AccountMaxQuantity	Integer	50	The maximum number of accounts that can be created for an instance.
└CreationTime	String	2011-05-30T12:11:4Z	The time when the instance was created. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. Example: `2011-05-30T12:11:4Z`.
└ExpireTime	String	None	The expiration time of the instance. This parameter is not returned for pay-as-you-go instances.

Parameter	Type	Example	Description
└MaintainTime	String	00:00Z-02:00Z	The scheduled maintenance window of the instance. For example, `00:00Z-02:00Z` indicates that routine maintenance can be performed from 00:00 to 02:00.
└AvailabilityValue	String	100.0%	The availability status of the instance. Unit: %.
└MaxIOPS	Integer	150	The maximum number of I/O operations per second (IOPS).
└MaxConnections	Integer	60	The maximum number of concurrent connections to the instance.
└MasterInstanceId	String	null	The ID of the primary instance. If this parameter is not returned (null), the instance is a primary instance.
└IncrementSourceDBInstanceId	String	null	The instance ID of the incremental data source. For example, the incremental data source of a disaster recovery instance or read-only instance is the primary instance, and the incremental data source of the primary instance is null.
└GuardDBInstanceId	String	None	The ID of the disaster recovery instance attached to the instance.
└TempDBInstanceId	String	None	The ID of the temporary instance attached to the instance.
└ReadOnlyDBInstanceIds		rr-xxxxx	The IDs of the read-only instances attached to the instance.
└DBInstanceId	String	rm-bpxxxxx	The ID of the instance.
└VpcCloudInstanceId	String	vpc-xxxxx	The ID of the VPC.
└ResourceGroupId	String	3653788125	The ID of the resource group.
RequestId	String	1AD222E9-E606-4A42-BF6D-8A4442913CEF	The ID of the request.

DBInstanceAttribute parameters

Note You can call the DescribeDBInstanceHAConfig operation to query information of the primary and secondary instances.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstanceAttribute
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

JSON format

```
{ "Items":
    { "DBInstanceAttribute":
        [ { "LockMode": "Unlock",
            "ConnectionString": "rds-xxxxx.mysql.rds.aliyuncs.com",
            "CreationTime": "2014-10-10T10:28:48Z",
            "DBInstanceNetType": "Internet",
            "ReadOnlyDBInstanceIds": { "ReadOnlyDBInstanceId": [] },
            "MaxConnections": 60,
            "LockReason": "",
            "Engine": "MySQL",
            "AvailabilityValue": "100.0%",
            "AccountMaxQuantity": 50,
            "DBMaxQuantity": 200,
            "RegionId": "cn-hangzhou",
            "TempDBInstanceId": "",
            "DBInstanceMemory": 240,
            "MaxIOPS": 150,
            "DBInstanceType": "Primary",
            "DBInstanceStatus": "Running",
            "MasterInstanceId": "",
            "EngineVersion": "5.6",
            "IncrementSourceDBInstanceId": "",
            "GuardDBInstanceId": "",
            "DBInstanceStorage": 10,
            "DBInstanceDescription": "",
            "DBInstanceId": "rdsfnjfquxxxxx",
            "PayType": "Postpaid",
            "ExpireTime": "",
            "MaintainTime": "",
            "DBInstanceClass": "rds.mys2.small",
            "SecurityIPList": "11.11.11.11",
            "Port": "3306" } ] },
    "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

Sample error responses

JSON format

{ "Code":"UnsupportedOperation",
"HostId":"rds.aliyuncs.com",
"Message":"The specified action is not supported.",
"RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}

8.1.2.1.5. DescribeDBInstances

Description

You can call this operation to query instances and RAM-authorized instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstances	The operation that you want to perform. Set the valuer to DescribeDBInstances.
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.
ConnectionMode	String	No	Performance	The access mode of the instance. Valid values: • Performance: standard access mode • Safe: safe access mode • If no value is specified, instances in both access modes are returned.

Parameter	Type	Required	Example	Description
DBInstanceType	String	No	Primary	The role of the instance. Valid values: • Primary: primary instance • Readonly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance • If no value is specified, instance of all roles are returned.
InstanceNetworkType	String	No	Classic	The network type of the instance. Valid values: • VPC: VPC instance • Classic: classic network instance • If no value is specified, instance of both network types are returned.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
Tags	String	No	{ “key1” :” value 1” }	The tag of the instance, in the JSON format. The tag includes a key-value pair of TagKey and TagValue. TagValue can be left empty, but TagValue cannot. Example: { “key1” :” value 1” }.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The number of the page returned.
TotalRecordCount	Integer	1	The total number of entries.
PageRecordCount	Integer	1	The number of instances on the current page.
Items			The array that consists of instance data.
└DBInstanceId	String	rm-xxxxx	The ID of the instance.
└DBInstanceDescription	String	testforRemarks	The description of the instance.
└PayType	String	Postpaid	The billing method of the instance. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription

Parameter	Type	Example	Description
└DBInstanceType	String	Primary	The role of the instance. Valid values: • Primary: primary instance • ReadOnly: read-only instance • Guard: disaster recovery instance • Temp: temporary instance
└InstanceNetworkType	String	Classic	The network type of the instance. Valid values: • Classic: classic network instance • VPC: VPC instance
└ConnectionMode	String	Performance	The access mode of the instance. Valid values: • Performance: standard access mode • Safe: safe access mode
└RegionId	String	cn-hangzhou	The region ID of the instance.
└ExpireTime	String	None	The expiration time of the instance. This parameter is not returned for pay-as-you-go instances.
└DBInstanceStatus	String	Intranet	The status of the instance. For more information, see Instance states in Appendix.
└Engine	String	MySQL	The type of the database.

Parameter	Type	Example	Description
└DBInstanceNetType	String	Internet	The network connection type of the instance. Valid values: • Internet: public network • Intranet: internal network
└LockMode	String	Unlock	The lock status of the instance. Valid values: • Unlock: normal • ManualLock: locked manually • LockByExpiration: locked automatically upon expiration • LockByRestoration: locked automatically before instance rollback • LockByDiskQuota: locked automatically for full disk space
└LockReason	String	None	The reason why the instance is locked.
└MasterInstanceId	String	null	The ID of the primary instance. If this parameter is not returned (null), the instance is a primary instance.
└GuardDBInstanceId	String	None	The ID of the disaster recovery instance attached to the instance.
└TempDBInstanceId	String	None	The ID of the temporary instance attached to the instance.
└VpcCloudInstanceId	String	vpc-xxxxx	The ID of the VPC instance.
└ReadOnlyDBInstanceIds			None
└DBInstanceId	String	rm-xxxxx	The ID of the instance.

Parameter	Type	Example	Description
RequestId	String	1AD222E9-E606-4A42-BF6D-8A4442913CEF	The ID of the request.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstances
&RegionId=cn-hangzhou
&Engine=MySQL
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeDBInstancesResponse>
<PageRecordCount>2</PageRecordCount>
<Items>
<DBInstance>
<DBInstanceDescription>testforRemarks</DBInstanceDescription>
<ExpireTime>2014-10-10T16:00:00Z</ExpireTime>
<DBInstanceId>rdsmjfirxxxxx</DBInstanceId>
<DBInstanceNetType>Internet</DBInstanceNetType>
<PayType>Prepaid</PayType>
<DBInstanceStatus>Running</DBInstanceStatus>
<DBInstanceType>Primary</DBInstanceType>
<Engine>MySQL</Engine>
<LockMode>Unlock</LockMode>
<LockReason/>
<RegionId>cn-hangzhou</RegionId>
<ZoneId>cn-hangzhou-a</ZoneId>
<MasterInstanceId/>
<GuardDBInstanceId/>
<TempDBInstanceId/>
<ReadOnlyDBInstanceIds>
<ReadOnlyDBInstanceId/> </ReadOnlyDBInstanceIds>
</DBInstance>
</Items>
<PageNumber>1</PageNumber>
<TotalRecordCount>2</TotalRecordCount>
<RequestId>2553A660-E4EB-4AF4-A402-8AFF70A49143</RequestId>
</DescribeDBInstancesResponse>
```

- JSON format

```
{ "Items":
    { "DBInstance":
        [ { "DBInstanceDescription":"testforRemarks",
            "DBInstanceId":"rdsmjfirxxxxx",
            "DBInstanceNetType":"Internet",
            "DBInstanceStatus":"Running",
            "DBInstanceType":"Primary",
            "Engine":"MySQL",
            "ExpireTime":"2014-10-10T16:00:00Z",
            "GuardDBInstanceId ":"",
            "LockMode":"Unlock",
            "LockReason":"",
            "MasterInstanceId":"",
            "PayType":"Prepaid",
            "ReadOnlyDBInstanceIds":{ "ReadOnlyDBInstanceId":[] },
            "RegionId":"cn-hangzhou",
            "TempDBInstanceId":"",
            "ZoneId":"cn-hangzhou-a" },
        ] },
    "PageNumber":1,
    "PageRecordCount":2,
    "RequestId":"2553A660-E4EB-4AF4-A402-8AFF70A49143",
    "TotalRecordCount":2
}
```


- **Sample error responses**

  JSON format


```
{ "Code":"UnsupportedOperation",
"HostId":"rds.aliyuncs.com",
"Message":"The specified action is not supported.",
"RequestId":"7463B73D-35CC-4D19-A010-6B8D65D242EF"}
```


8.1.2.1.6. ModifyDBInstanceSpec

Description

You can call this operation to change the type or storage space of an instance. Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is not performing a backup task.
- One of the instance type (DBInstanceClass) and storage space (DBInstanceStorage) parameters is specified in the request.
- When you downgrade the disk space configuration, the input disk space is no less than 1.1 times the actually used space.
- Only primary and read-only instances allow specification changes. Specifications of disaster recovery and temporary instances cannot be changed.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceSpec	The operation that you want to perform. Set the value to ModifyDBInstanceSpec.
DBInstanceId	String	Yes	rm-bpxxxx	The ID of the instance.
AccessKeyId	String	No	LTAIKw8gqxxxxx	The AccessKey ID provided by Alibaba Cloud.
ClientToken	String	No	ETnLKlblzczshOTUbOCziJZNwHlYBQ	The client token that is used to ensure idempotence of the request.
DBInstanceClass	String	No	rds.mys2.small	The instance type. For more information, see Instance types in Appendix.
DBInstanceStorage	Integer	No	20	The user-defined storage space. Unit: GB. This value must be in 5 GB increments. For more information, see the Instance types topic in the User Guide of ApsaraDB RDS.
EffectiveTime	String	No	Immediate	The time when the changes take effect. Valid values: Immediate and MaintainTime. Default value: Immediate.
OwnerAccount	String	No	testuser@aliyun.com	The Apsara Stack tenant account.

Response parameters

Parameter	Type	Example	Description
RequestId	String	1AD222E9-E606-4A42-BF6D-8A4442913CEF	The ID of the request.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceSpec
&DBInstanceId=rds-xxxxx
&PayType=Postpaid
&DBInstanceStorage=10
&<Common request parameters>
```

Sample success responses

- XML format

```
<ModifyDBInstanceSpecResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyDBInstanceSpecResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

Sample error responses

JSON format

```
{ "Code":"UnsupportedOperation",
"HostId":"rds.aliyuncs.com",
"Message":"The specified action is not supported.",
"RequestId":"7463B73D-35CC-4D19-A010-6B8D65D242EF"}
```

8.1.2.1.7. DescribeDBInstanceNetInfo

Queries the connection information of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceNetInfo	The operation that you want to perform. Set the value to **DescribeDBInstanceNetInfo**.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Flag	String	No	N/A	A hidden parameter.
DBInstanceNetRWSplitType	String	No	Normal	The type of the endpoint. Valid values: • **Normal** • **ReadWriteSplitting** **Note** By default, the system returns both types of endpoints.

Response parameters

Parameter	Type	Example	Description
DBInstanceNetInfos	Array		Details about the instance endpoint.
DBInstanceNetInfo			
ConnectionString	String	rm-uf6wxxxxx.mysql.rds.aliyuncs.com	The endpoint of the instance.
IPAddress	String	192.168.12.84	The IP address of the instance.

Parameter	Type	Example	Description

IPType	String	Public	The network type of the instance.
			• Valid values when the instance resides in the classic network:
			  ◦ **Inner**: internal network
			  ◦ **Public**: Internet
			• Valid values when the instance resides in a virtual private cloud (VPC):
			  ◦ **Private**: internal network
			  ◦ **Public**: Internet

Port	String	3306	The port that is used to connect to the instance.
VPCId	String	vpc-uf6f7l4fg90xxxxxxxxxx	The ID of the VPC.
VSwitchId	String	vsw-uf6adz52c2pxxxxxxxxxx	The ID of the vSwitch.
ConnectionStringType	String	Normal	The type of the endpoint. Valid values: • **Normal** • **ReadWriteSplitting**
MaxDelayTime	String	12	The latency threshold. This parameter is returned only for a read/write splitting endpoint. Unit: seconds. **Note** If the latency on a read-only instance exceeds the specified threshold, ApsaraDB RDS no longer routes read requests to the read-only instance.
DistributionType	String	Standard	The policy that is used to allocate read weights. This parameter is returned only for a read/write splitting endpoint. Valid values: • **Standard**: ApsaraDB RDS allocates a read weight to each instance based on the instance specifications. • **Custom**: You must manually assign a read weight to each instance.

Parameter	Type	Example	Description
DBInstanceWeights	Array		Details about the weight. This parameter is returned only when the read/write splitting feature is enabled for the instance.
DBInstanceWeight			
DBInstanceId	String	rm-uf6wjk5xxxxxxx	The ID of the instance.
DBInstanceType	String	Master	The role of the instance. Valid values: • **Master**: primary instance • **Readonly**: read-only instance
Weight	String	100	The weight of the instance.
Availability	String	Unavailable	The availability of the instance. Valid values: • **Unavailable** • **Available**
ExpiredTime	String	1209534	The remaining time of the classic network in hybrid access mode. Unit: seconds.
SecurityIPGroups	Array		Details about the IP address whitelist.
securityIPGroup			
SecurityIPGroupName	String	Default	The name of the IP address whitelist.
SecurityIPs	String	127.0.0.1	The IP addresses contained in the IP address whitelist.
Upgradeable	String	Disabled	Indicates whether the IP version can be updated. Valid values: **Enable and Disabled**. **Note** The IP version can be updated from IPv4 to IPv6.

Parameter	Type	Example	Description
InstanceNetworkType	String	VPC	The network type of the instance. Valid values: • **Classic** • **VPC**
RequestId	String	777C4593-8053-427B-99E2-105593277CAB	The ID of the request.
SecurityIPMode	String	safety	The whitelist mode of the instance. Valid values: • **normal**: standard whitelist mode • **safety**: enhanced whitelist mode

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstanceNetInfo
&DBInstanceId=rm-uf6wjk5xxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceNetInfoResponse>
      <dBInstanceNetInfos>
            <connectionString>rm-uf6wjk5xxxxxxx.mysql.rds.aliyuncs.com</connectionString>
            <connectionStringType>Normal</connectionStringType>
            <iPAddress>192.168.xx.xx</iPAddress>
            <iPType>Public</iPType>
            <port>3306</port>
            <upgradeable>Disabled</upgradeable>
            <vPCId></vPCId>
      </dBInstanceNetInfos>
      <instanceNetworkType>Classic</instanceNetworkType>
      <requestId>777C4593-8053-427B-99E2-105593277CAB</requestId>
</DescribeDBInstanceNetInfoResponse>
```

`JSON` format

```
{
    "dBInstanceNetInfos": [
        {
            "connectionString": "rm-uf6wjk5xxxxxxx.mysql.rds.aliyuncs.com",
            "connectionStringType": "Normal",
            "dBInstanceWeights": [],
            "iPAddress": "192.168.xx.xx",
            "iPType": "Public",
            "port": "3306",
            "securityIPGroups": [],
            "upgradeable": "Disabled",
            "vPCId": ""
        }
    ],
    "instanceNetworkType": "Classic",
    "requestId": "777C4593-8053-427B-99E2-105593277CAB"
}
```


8.1.2.1.8. ModifyDBInstanceConnectionString

Description

You can call this operation to modify the endpoint and port of a connection string.

ApsaraDB RDS provides the internal and public endpoints and allows both types to coexist in a specific access mode.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyDBInstanceConnectionString.
DBInstanceId	String	Yes	The ID of the instance.
CurrentConnectionString	String	Yes	The endpoint used by the instance.
ConnectionStringPrefix	String	No	The endpoint to be used by the instance.
Port	String	No	The port to be used by the instance.

Response parameters

This operation returns only common response parameters.

8.1.2.1.9. ModifyDBInstanceNetworkType

Changes the network type of an ApsaraDB RDS instance.

This operation is used to switch the network type of an instance between VPC and classic network.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceNetworkType	The operation that you want to perform. Set the value to **ModifyDBInstanceNetworkType**.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
InstanceNetworkType	String	Yes	Classic	The new network type of the instance. Valid values: • **VPC** • **Classic**
VPCId	String	No	vpc-uf6f7l4fg90xxxxx	The ID of the VPC.
VSwitchId	String	No	vsw-uf6adz52c2pxxxx	The ID of the vSwitch. This parameter is required if the value of **VPCId** is specified.
PrivateIpAddress	String	No	172.10.40.25	The internal IP address of the instance, which must be within the CIDR block supported by the specified vSwitch. The system assigns an internal IP address based on the **VPCId** and **VSwitchId** parameters.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceNetworkType
&DBInstanceId=rm-uf6wjk5xxxxxxx
&InstanceNetworkType=Classic
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceNetworkTypeResponse>
      <RequestId> 65BDA532-28AF-4122-AA39-B382721EEE64</RequestId>
</ModifyDBInstanceNetworkTypeResponse>
```

`JSON` format

```
{
  "RequestId": " 65BDA532-28AF-4122-AA39-B382721EEE64"
}
```

Error codes

For more information, see Common errors.

8.1.2.1.10. DescribeDBInstanceIPArrayList

Description

You can call this operation to query the IP whitelist of an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeDBInstanceIPArrayList.
DBInstanceId	String	Yes	The ID of the instance whose IP whitelist is queried.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
Items	List<DBInstanceIPArray>	The array that consists of DBInstanceIPArray data.

DBInstanceIPArray parameters

Parameter	Type	Description
DBInstanceIPArrayName	String	The name of the IP whitelist.
DBInstanceIPArrayAttribute	String	The attribute of the IP whitelist. Default value: null. Whitelists tagged with "hidden" are not displayed in the console.

Parameter	Type	Description
SecurityIPList	String	The IP addresses in an IP address whitelist. Separate multiple IP addresses with commas (,). You can add a maximum of 1,000 different IP addresses to a whitelist. Supported formats of IP addresses are IP addresses such as 0.0.0.0/0 and 10.23.12.24, or Classless Inter-Domain Routing (CIDR) blocks such as 10.23.12.24/24. /24 indicates the length of the IP address prefix. The IP address prefix can consist of 1 to 32 bits.

8.1.2.1.11. ModifySecurityIps

Modifies an IP address whitelist of an instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is not locked by the system.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityIps	The operation that you want to perform. Set the value to ModifySecurityIps.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
SecurityIps	String	Yes	10.23.12.24	The IP addresses in an IP address whitelist. Separate multiple IP addresses with commas (,). Each IP address in the IP address whitelist must be unique. You can add IP addresses in the following formats: • IP addresses, such as 10.23.12.24. • Classless Inter-Domain Routing (CIDR) blocks, such as 10.23.12.0/24. In this case, /24 indicates that the prefix of each IP address is 24-bit long. You can replace 24 with a value within the range of 1 to 32. **Note** A maximum of 1,000 IP addresses and CIDR blocks can be configured for each instance. If you want to add a large number of IP addresses, we recommend that you merge them into CIDR blocks, such as 10.23.12.0/24.

Parameter	Type	Required	Example	Description
DBInstanceIPArrayName	String	No	test	The name of the IP address whitelist to be modified. Default value: Default. **Note** A maximum of 200 IP address whitelists can be configured for each instance.
DBInstanceIPArrayAttribute	String	No	hidden	The attribute of the IP address whitelist. This parameter is empty by default. **Note** The IP address whitelists that have the hidden attribute are not displayed in the ApsaraDB RDS console. These IP address whitelists are used to access Alibaba Cloud services such as Data Transmission Service (DTS).

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifySecurityIps
&DBInstanceId=rds-xxxxx
&SecurityIps=192.168.1.2
&<Common request parameters>
```

Sample success responses

- XML format

```
<ModifySecurityIpsResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifySecurityIpsResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.1.12. DescribeRegions

Description

You can call this operation to query the available RDS regions and zones.

Before you call the CreateInstance operation, call this operation to query region IDs.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeRegions.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
Regions	List<RDSRegion>	The array that consists of RDSRegion data.

RDSRegion parameters

Parameter	Type	Description
RegionId	String	The region ID.
ZoneId	String	The zone ID.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeRegions
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeRegionsResponse>
<Regions>
<RDSRegion>
<RegionId>cn-hangzhou</RegionId>
<ZoneId>cn-hangzhou-a</RegionId>
</RDSRegion>
<RDSRegion>
<RegionId>cn-hangzhou</RegionId
><ZoneId>cn-hangzhou-b</ZoneId>
</RDSRegion>
</Regions>
<RequestId>A36D9720-7902-42A4-B8B9-014A2135E6C3</RequestId>
</DescribeRegionsResponse>
```

- JSON format

```
{ "Regions":
    { "RDSRegion":
        [ {"RegionId": "cn-hangzhou",
            "ZoneId":"cn-hangzhou-a"},
          {"RegionId": "cn-hangzhou",
            "ZoneId":"cn-hangzhou-b"},
             ]},
    "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"
}
```

8.1.2.1.13. DescribeDBInstanceHAConfig

Queries the high availability mode and data replication mode of an ApsaraDB RDS instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceHAConfig	The operation that you want to perform. Set the value to DescribeDBInstanceHAConfig.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.
DBInstanceId	String	The ID of the instance.
SyncMode	String	The synchronization mode. Valid values: Semi-sync and Async.
HAMode	String	The high availability mode. RPO: Data persistence is preferred. RTO: Instance availability is preferred.
HostInstanceInfos	List<NodeInfo>	Details about primary and secondary instances.

NodeInfo parameters

Parameter	Type	Description
NodeId	String	The unique ID of the primary or secondary instance.
NodeType	String	The role of the instance. Master: primary instance. Slave: secondary instance.
RegionId	String	The region ID of the instance.
ZoneId	String	The zone ID of the instance.
SyncStatus	String	The synchronization status of the instance. NotAvailable: Synchronization is unavailable because a failure has occurred. Syncing: Synchronization is in process, with a probability of data loss during failovers. Synchronized: Synchronization is complete. NotSupport: Synchronization is not supported by the engine type or version.
LogSyncTime	String	The time when the secondary instance receives logs.
DataSyncTime	String	The time when the secondary instance receives data.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstanceHAConfig
&DBInstanceId=rm-uf6wjk5xxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceHAConfigResponse>
      <dBInstanceId>rm-uf6wjk5xxxxxx</dBInstanceId>
      <hAMode>RPO</hAMode>
      <hostInstanceInfos>
            <logSyncTime>2018-01-19T12:33:06Z</logSyncTime>
            <nodeId>3397027</nodeId>
            <nodeType>Slave</nodeType>
            <regionId>cn-shenzhen</regionId>
            <syncStatus>Syncing</syncStatus>
            <zoneId>cn-shenzhen-b</zoneId>
      </hostInstanceInfos>
      <hostInstanceInfos>
            <logSyncTime>2018-01-19T12:33:06Z</logSyncTime>
            <nodeId>3397029</nodeId>
            <nodeType>Master</nodeType>
            <regionId>cn-shenzhen</regionId>
            <syncStatus>Syncing</syncStatus>
            <zoneId>cn-shenzhen-a</zoneId>
      </hostInstanceInfos>
      <requestId>F051AEB2-7655-4F0A-BC46-7E0C18A7910C</requestId>
      <syncMode>Semi-sync</syncMode>
</DescribeDBInstanceHAConfigResponse>
```

`JSON` format

```
{
    "dBInstanceId": "rm-uf6wjk5xxxxxx",
    "hAMode": "RPO",
    "hostInstanceInfos": [
        {
            "logSyncTime": "2018-01-19T12:33:06Z",
            "nodeId": "3397027",
            "nodeType": "Slave",
            "regionId": "cn-shenzhen",
            "syncStatus": "Syncing",
            "zoneId": "cn-shenzhen-b"
        },
        {
            "logSyncTime": "2018-01-19T12:33:06Z",
            "nodeId": "3397029",
            "nodeType": "Master",
            "regionId": "cn-shenzhen",
            "syncStatus": "Syncing",
            "zoneId": "cn-shenzhen-a"
        }
    ],
    "requestId": "F051AEB2-7655-4F0A-BC46-7E0C18A7910C",
    "syncMode": "Semi-sync"
}
```

8.1.2.1.14. MigrateToOtherZone

Migrates an ApsaraDB RDS instance across zones within the same region.

For example, if Instance 1 is located in Hangzhou Zone A, you can call this operation to migrate the instance to Hangzhou Zone B.

> **Note** In cross-zone migration, instances must be migrated within the same region. For example, instances in a zone of the China (Hangzhou) region cannot be migrated to a zone of the China (Qingdao) region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	MigrateToOtherZone	The operation that you want to perform. Set the value to MigrateToOtherZone.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxxxx	The ID of the instance.
ZoneId	String	Yes	cn-hangzhou-b	The ID of the destination zone. You can call the operation to query available zones.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=MigrateToOtherZone
&DBInstanceId=rm-uf6wjk5xxxxxxxxxx
&ZoneId=cn-hangzhou-b
&<Common request parameters>
```

Sample success responses

- XML format

```
<MigrateToOtherZoneResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</MigrateToOtherZoneResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.1.15. PurgeDBInstanceLog

Clears logs of an ApsaraDB RDS instance.

- For an ApsaraDB RDS for MySQL instance, this operation clears all binlogs of the instance.
- For an ApsaraDB RDS for SQL Server instance, this operation generates a temporary backup and compresses transaction logs to release space.

> **Note** This operation is available only for instances that run MySQL or SQL Server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PurgeDBInstanceLog	The operation that you want to perform. Set the value to PurgeDBInstanceLog.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=PurgeDBInstanceLog
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<PurgeDBInstanceLogResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</PurgeDBInstanceLogResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.1.16. ModifyDBInstanceDescription

Description

You can call this operation to modify the description of an instance to identify the instance easily. For example, you can modify the description of an instance to *Alibaba Cloud testing environment instance*.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyDBInstanceDescription.
DBInstanceId	String	Yes	The ID of the instance whose description is modified.
DBInstanceDescription	Sting	Yes	The description of the instance.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceDescription
&DBInstanceId=rds-xxxxx
&DBInstanceDescription=testdescribe
&<Common request parameters>
```

Sample responses

- XML format

```
<ModifyDBInstanceDescriptionResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyDBInstanceDescriptionResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.1.17. ModifyDBInstanceMaintainTime

Modifies the maintenance time of an ApsaraDB RDS instance.

You can set the maintenance time to a period of time during off-peak hours. Alibaba Cloud performs routine maintenance within the maintenance window to minimize impacts on your business.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceMaintainTime	The operation that you want to perform. Set the value to ModifyDBInstanceMaintainTime.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
MaintainTime	String	Yes	22:00Z-02:00Z	The maintenance window of the instance. Specify the time in the ISO 8601 standard in the *HH:mm*Z-*HH:mm*Z format. The time must be in UTC.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceMaintainTime
&DBInstanceId=rds-xxxxx
&MaintainTime=22:00Z-02:00Z
&<Common request parameters>
```

Sample success responses

- XML format

```
<ModifyDBInstanceMaintainTimeResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyDBInstanceMaintainTimeResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.1.18. ModifyDBInstanceHAConfig

Description

You can call this operation to modify the instance data replication mode and high availability switching rules.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyDBInstanceHAConfig.
DBInstanceId	String	Yes	The ID of the instance.
SyncMode	String	Yes	The synchronization mode of the instance. Valid values: Semi-sync and Async.
HAMode	String	Yes	The HA mode of the instance. RPO: Data persistence is preferred. RTO: Instance availability is preferred.

Response parameters

This operation returns only common response parameters.

8.1.2.1.19. SwitchDBInstanceHA

Switches services between a primary ApsaraDB RDS instance and its secondary instance.

This operation switches services between the primary and secondary ApsaraDB RDS instances that do not run the Basic Edition. After the switchover, the secondary instance takes over services as the primary instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SwitchDBInstanceHA	The operation that you want to perform. Set the value to SwitchDBInstanceHA.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxxxx	The ID of the primary instance.
NodeId	String	Yes	349054	The unique ID of the secondary instance.
Force	String	No	No	Specifies whether to enable forced switching. Valid values: • Yes: forced • No: unforced Default value: No

Parameter	Type	Required	Example	Description
EffectiveTime	String	No	Immediate	The time when you want the specified settings to take effect. Valid values: • Immediate: The switching immediately takes effect. • MaintainTime: The switching takes effect during the maintenance window. Default value: Immediate.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=SwitchDBInstanceHA
&DBInstanceId=rm-uf6wjk5xxxxxxxxxx
&NodeId=349054
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SwitchDBInstanceHAResponse>
      <RequestId>1E43AAE0-BEE8-43DA-860D-EAF2AA0724DC</RequestId>
</SwitchDBInstanceHAResponse>
```

`JSON` format

```
{
    "RequestId": "1E43AAE0-BEE8-43DA-860D-EAF2AA0724DC"
  }
```

8.1.2.1.20. CreateReadOnlyDBInstance

Description

Creates a read-only instance for a primary ApsaraDB RDS instance. Before you call this operation, make sure that the following requirements are met:

- The primary instance is in the running state, but not in the failover state.
- The read-only instance and the primary instance are in the same region.
- A primary ApsaraDB RDS instance can have up to five read-only instances.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateReadOnlyDBInstance.
RegionId	String	Yes	The region ID of the instance. It can be up to 50 characters in length. You can call the DescribeRegions operation to query the most recent region list.
ZoneId	String	Yes	The zone ID of the instance. You can call the DescribeRegions operation to query the most recent zone list.
DBInstanceId	String	Yes	The ID of the primary instance.
EngineVersion	String	Yes	The database engine version that the read-only instance runs. The read-only instance must run the same engine version as the primary instance. Valid values: • 8.0 • 5.7 • 5.6
DBInstanceClass	String	Yes	The instance type.
DBInstanceStorage	Integer	Yes	The user-defined storage capacity. Valid values: 5 to 1000. This value must be in 5 GB increments. Unit: GB.
DBInstanceDescription	String	No	The description of the instance. It must be 2 to 256 bytes in length , https:// and can contain letters, digits, underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.
ClientToken	String	Yes	The client token that is used to ensure idempotence of the request.
InstanceNetworkType	String	No	The network type of the instance. Valid values: VPC and Classic. Default value: Classic.
VPCId	String	No	The ID of the VPC.
VSwitchId	String	No	The ID of the vSwitch.
PrivateIpAddress	String	No	The IP address of the VPC that belongs to VSwitchId. If no value is specified, the system allocates a VPC IP address based on VPCId and VSwitchId.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Parameter	Type	Description
DBInstanceId	String	The ID of the instance.
OrderId	String	The ID of the order.
ConnectionString	String	The endpoint that is used to connect to the database.
Port	String	The port that is used to connect to the database.

Examples

Sample requests

```
https://rds.example.com/?Action=CreateReadOnlyDBInstance
&RegionId=cn-hangzhou
&ZoneId=cn-hangzhou-b
&DBInstanceId=rds-xxxxx
&EngineVersion=5.6
&DBInstanceClass=rds.mys2.small
&DBInstanceStorage=10
&PayType=Postpaid
&ClientToken=ETnLKxxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<CreateDBInstanceResponse>
<OrderId>10078937xxxxx</OrderId>
<ConnectionString>rds-xxxxx.mysql.rds.aliyuncs.com </ConnectionString>
<DBInstanceId>rds-xxxxx</DBInstanceId>
<port>3306</port>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CreateDBInstanceResponse>
```

- JSON format

```
{ "OrderId": "100789370230206",
"ConnectionString": "rds-xxxxx.mysql.rds.aliyuncs.com",
"DBInstanceId": "rds-xxxxx",
"Port": "3306",
"RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.1.21. DescribeDBInstanceSSL

Queries Secure Sockets Layer (SSL) settings of an ApsaraDB RDS instance.

This operation is available for instances that run MySQL 5.6, MySQL 5.7, or SQL Server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceSSL	The operation that you want to perform. Set the value to DescribeDBInstanceSSL.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.
ConnectionString	String	The endpoint that is protected by SSL encryption.
SSLExpireTime	String	The expiration time of the SSL certificate. This time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format.
RequireUpdate	String	Indicates whether an immediate update is required. Valid values: Yes and No.
RequireUpdateReason	String	The reason why an update is required.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstanceSSL
&DBInstanceId=rm-uf6wjk5xxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceSSLResponse>
      <items>
            <ConnectionString>rm-uf6wjk5xxxxxx.mysql.rds.aliyuncs.com</ConnectionString>
            <SSLExpireTime>2018-01-17T12:18:15Z</SSLExpireTime>
            <RequireUpdate>Yes</RequireUpdate>
            <RequireUpdateReason></RequireUpdateReason>
      </items>
      <requestId>1AD222E9-E606-4A42-BF6D-8A4442913CEF</requestId>
</DescribeDBInstanceSSLResponse>
```

`JSON` format

```
{
    "items": [
        {
            "ConnectionString": "rm-uf6wjk5xxxxxx.mysql.rds.aliyuncs.com",
            "SSLExpireTime": "2018-01-17T12:18:15Z",
            "RequireUpdate": "Yes",
            "RequireUpdateReason": ""
        }
    ],
    "requestId": "1AD222E9-E606-4A42-BF6D-8A4442913CEF"
}
```

8.1.2.1.22. ModifyDBInstanceSSL

Description

You can call this operation to modify the SSL link of an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyDBInstanceSSL.
DBInstanceId	String	Yes	The ID of the instance.
ConnectionString	String	Yes	Each instance can only have one endpoint protected by the SSL certificate. The SSL certificate can be created or updated for the endpoint.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
SSLExpireTime	String	The expiration time of the SSL certificate. The time follows the ISO 8601 standard in the YYYY-MM-DDThh:mm:ssZ format.

8.1.2.1.23. DescribeDBInstanceTDE

Queries the Transparent Data Encryption (TDE) status of an ApsaraDB RDS instance.

This operation is available only for instances that run MySQL 5.6 or SQL Server EE.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceTDE	The operation that you want to perform. Set the value to DescribeDBInstanceTDE.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.
TDEStatus	String	The TDE status of the instance. Valid values: Enabled and Disabled.
Databases	List<DataBase>	Details about the database.

Database parameters

Parameter	Type	Description
DBName	String	The name of the database.
TDEStatus	String	The TDE status of the database. Valid values: Enabled and Disabled.

8.1.2.1.24. ModifyDBInstanceTDE

Enables or disables the Transparent Data Encryption (TDE) feature for an ApsaraDB RDS instance.

This operation is available only for instances that run MySQL 5.6, MySQL 5.7, or SQL Server 2008 R2.

- For instances that run MySQL 5.6 or MySQL 5.7, TDE can be enabled only on instances and cannot be disabled. You cannot specify the DBName value to modify the TDE status of a database.
- For instances that run SQL Server 2008 R2, TDE can be enabled or disabled only on databases. When TDE is enabled on a database, the TDE feature of the instance is enabled and cannot be disabled.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceTDE	The operation that you want to perform. Set the value to ModifyDBInstanceTDE.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
TDEStatus	String	Yes	Enabled	The TDE status of the instance. Valid values: Enabled and Disabled.
DBName	String	No	testDB	The name of the database for which you want to enable TDE. Up to 50 names can be entered in a single request. Separate multiple names with commas (,).

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceTDE
&DBInstanceId=rm-uf6wjk5xxxxxxx
&TDEStatus=Enabled
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceTDEResponse>
      <requestId>777C4593-8053-427B-99E2-105593277CAB</requestId>
</ModifyDBInstanceTDEResponse>
```

`JSON` format

```
{
    "requestId": "777C4593-8053-427B-99E2-105593277CAB"
}
```

8.1.2.2. Database management

8.1.2.2.1. CreateDatabase

Description

You can call this operation to create a new database in an instance. Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is not locked.
- The maximum number of databases in the instance is not reached.
- The instance is a primary instance.

> **Note** This operation is not supported on PolarDB. You can create databases in PolarDB instances by executing CREATE DATABASE statements.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateDatabase.
DBInstanceId	String	Yes	The ID of the instance.
DBName	String	Yes	The unique name of the database. The name can be up to 64 characters in length and can contain lowercase letters, digits, and underscores (_). It must start with a letter. For information about invalid characters, see Forbidden keywords.
CharacterSetName	String	Yes	The character set. Valid values: • MySQL: utf8, gbk, latin1, and utf8mb4 • SQL Server: Chinese_PRC_CI_AS, Chinese_PRC_CS_AS, SQL_Latin1_General_CP1_CI_AS, SQL_Latin1_General_CP1_CS_AS, and Chinese_PRC_BIN
DBDescription	String	No	The description of the database. It must be 2 to 256 characters in length and can contain letters, digits, underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=CreateDatabase
&CharacterSetName=gbk
&DBName=testDB
&DBInstanceId=rds-xxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<CreateDatabaseResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CreateDatabaseResponse>
```

- JSON format

```
{ "RequestID":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.2.2. DeleteDatabase

Description

You can call this operation to delete a database from an instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is a primary instance.

Note This operation is not supported on PolarDB. You can delete databases from PolarDB instances by executing DROP DATABASE statements.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteDatabase.
DBInstanceId	String	Yes	The ID of the instance.
DBName	String	Yes	The name of the database.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=DeleteDatabase
&DBName=testDB
&DBInstanceId=rds-xxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<DeleteDatabaseResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</DeleteDatabaseResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.2.3. DescribeDatabases

Description

You can call this operation to query the databases of a specified instance or information of a specified database. If the request parameters are entered incorrectly, an error prompt is returned, and the returned data is empty.

> **Note** This operation is not supported on PolarDB.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeDatabases.
DBInstanceId	String	Yes	The ID of the instance.
DBName	String	No	The name of the database.
DBStatus	String	No	The state of the database. Valid values: Creating, Running, and Deleting.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Parameter	Type	Description
Databases	List<Database>	The array that consists of Database data.

Database parameters

Parameter	Type	Description
DBName	String	The name of the database.
DBInstanceId	String	The ID of the instance to which the database belongs.
Engine	String	The engine of the database.
DBStatus	String	The status of the database. Valid values: Creating, Running, and Deleting.
CharacterSetName	String	The character set.
DBDescription	String	The description of the database.
Accounts	List<AccountPrivilegeInfo>	The array that consists of AccountPrivilegeInfo data.
Account	String	The name of the account.
AccountPrivilege	String	The permissions of the account on the database.

AccountPrivilegeInfo parameters

Parameter	Type	Description
Account	String	The name of the account.
AccountPrivilege	String	The permissions of the account on the database.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDatabases
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeDatabasesResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<Databases>
<Database>
<Engine>MySQL</Engine>
<DBName>testdb</DBName>
<CharacterSetName>utf8</CharacterSetName>
<DBStatus>Creating</DBStatus>
<DBInstanceId>rds-xxxxx</DBInstanceId>
<Accounts>
<AccountPrivilegeInfo></AccountPrivilegeInfo>
<Accounts>
</Database>
</Databases>
</DescribeDatabasesResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
"Databases":
    { "Database":
        [ { "Engine": "MySQL",
            "CharacterSetName": "utf8",
            "DBStatus": "Creating",
            "DBDescription": "",
            "DBInstanceId": "rds-xxxxx",
            "Accounts": { " AccountPrivilegeInfo": [] },
            "DBName": "testdb" }] }
            }
```

8.1.2.2.4. ModifyDBDescription

Description

You can call this operation to modify the description of a database to facilitate user records. For example, you can modify the description of a database to Database A for Alibaba Cloud testing environment.

> **Note** This operation is not supported on PolarDB.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyDBDescription.
DBInstanceId	String	Yes	The ID of the instance.
DBName	String	Yes	The name of the database.

Parameter	Type	Required	Description
DBDescription	String	Yes	The description of the database.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBDescription
&DBInstanceId=rds-xxxxx
&DBInstanceDescription=testDBdescribe
&<Common request parameters>
```

Sample success responses

- XML format

```
<ModifyDBDescriptionResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyDBDescriptionResponse>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.3. Account management

8.1.2.3.1. CreateAccount

Description

In the same instance, one account can manage multiple databases by using different permissions.

You can call this operation to create an account for a database. Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The database is in the running state.
- The instance is not locked.
- The maximum number of accounts for a single instance is not reached.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateAccount.
DBInstanceId	String	Yes	The ID of the instance.
AccountName	String	Yes	The unique name of the account. The name can be up to 16 characters in length and can contain lowercase letters, digits, and underscores (_). It must start with a letter. For information about invalid characters, see Forbidden keywords.
AccountPassword	String	Yes	The password for the account. It must be 6 to 32 characters in length and can contain letters, digits, and underscores (_).
AccountType	String	No	The type of the account. Valid values: Normal and Super. Default value: Normal. PolarDB can have only a single initial account. You must use the initial account to log on to the database and create other types of accounts.
AccountDescription	String	No	The description of the account. It must be 2 to 256 characters in length and can contain letters, digits, underscores (_), and hyphens (-). It must start with a letter and cannot start with http:// or https://.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=CreateAccount
&AccountName=testacc02
&AccountPassword=pwxxxxx
&DBInstanceId=rds-xxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<CreateAccountResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CreateAccountResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.3.2. DeleteAccount

Description

You can call this operation to delete a database account.

The instance must be in the running state.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteAccount.
DBInstanceId	String	Yes	The ID of the instance to which the database belongs.
AccountName	String	Yes	The unique name of the account. The name can be up to 16 characters in length and can contain lowercase letters, digits, and underscores (_). It must start with a letter. For more information about invalid characters, see Forbidden keywords.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=DeleteAccount
&DBInstanceId=rds-xxxxx
&AccountName=testacc01
&<[Common request parameters]>
```

Sample responses

- XML format

```
<DeleteAccountResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</DeleteAccountResponse>
```

- JSON format

```
{ "RequestID":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.3.3. DescribeAccounts

Description

You can call this operation to query the accounts for a specified instance and database or the information of a specified account.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeAccounts.
DBInstanceId	String	Yes	The ID of the instance.
AccountName	String	Yes	The name of the account.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
Accounts	List<DBInstanceAccount>	The array that consists of DBInstanceAccount data.

DBInstanceAccount parameters

Parameter	Type	Description
DBInstanceId	String	The ID of the instance to which the account belongs.
AccountName	String	The name of the database account.
AccountStatus	String	The account status. Valid values: Unavailable and Available.
AccountDescription	String	The description of the account.
DatabasePrivileges	List<DatabasePrivilege>	The array that consists of DatabasePrivileges data.
AccountType	String	The type of the account. Valid values: Normal and Super.

DatabasePrivilege parameters

Parameter	Type	Description
DBName	String	The name of the database.
AccountPrivilege	String	The name of the database account.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeAccounts
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeAccountsResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<Accounts>
<DBInstanceAccount>
<AccountName>MySQL</AccountName>
<DBInstanceId>testdb</DBInstanceId>
<AccountStatus>utf8</AccountStatus>
<AccountDescription>
</AccountDescription>
<DatabasePrivileges>
<DatabasePrivilege></DatabasePrivilege>
</DatabasePrivileges>
<DBInstanceAccount>
</Accounts>
</DescribeAccountsResponse>
```

- JSON format

```
{ "Accounts":
    { "DBInstanceAccount":
        [ { "AccountDescription": "",
            "DBInstanceId": "rds-xxxxx",
            "DatabasePrivileges": { "DatabasePrivilege": [] },
            "AccountStatus": "Unavailable",
            "AccountName": "testaccount" } ] },
    "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.3.4. GrantAccountPrivilege

Grants database permissions to an account.

The instance must be in the running state.

> **Note**
>
> - An account can be authorized to access one or more databases.
> - If the specified account already has access permissions on the specified database, the operation directly returns a successful response.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GrantAccountPrivilege	The operation that you want to perform. Set the value to GrantAccountPrivilege.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxx	The ID of the instance.
AccountName	String	Yes	test1	The name of the account.
DBName	String	Yes	testDB	The name of the database to be accessed by the account.
AccountPrivilege	String	Yes	ReadOnly	The permissions of the database account. Valid values: • ReadOnly • ReadWrite

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=GrantAccountPrivilege
&AccountName=testacc02
&AccountPrivilege=readwrite
&DBName=testdb03
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<GrantAccountPrivilegeResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</GrantAccountPrivilegeResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.3.5. RevokeAccountPrivilege

Revokes database permissions of an account.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.

- The database is in the running state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RevokeAccountPrivilege	The operation that you want to perform. Set the value to RevokeAccountPrivilege.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxx	The ID of the instance.
AccountName	String	Yes	test1	The name of the account.
DBName	String	Yes	testDB	The name of the database.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=RevokeAccountPrivilege
&AccountName=testacc02
&DBName=testdb03
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<RevokeAccountPrivilegeResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</RevokeAccountPrivilegeResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.3.6. ModifyAccountDescription

Description

You can call this operation to modify the description of an account to facilitate user records. For example, you can modify the description of an account to Account A for Alibaba Cloud testing environment.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyAccountDescription.
DBInstanceId	String	Yes	The ID of the instance for which the account description is modified.
AccountName	String	Yes	The unique name of the account. The name can be up to 16 characters in length and can contain lowercase letters, digits, and underscores (_). It must start with a letter. For more information about invalid characters, see Forbidden keywords.
AccountDescription	String	Yes	The description of the account. It can be up to 256 characters in length and can contain letters, digits, underscores (_), and hyphens (-). It cannot start with http:// or https://. It must start with a letter.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyAccountDescription
&DBInstanceId=rds-xxxxx
&AccountName=testacc01
&AccountDescription=testAccoutdescribe
&<Common request parameters>
```

Sample responses

- XML format

```
<ModifyAccountDescription>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyAccountDescription>
```

- JSON format

```
{ "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.3.7. ResetAccountPassword

Resets the password of an account on an ApsaraDB RDS instance.

Description

Before you call this operation, make sure that the following requirements are met:

The instance is in the running state and not locked by the system.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetAccountPassword	The operation that you want to perform. Set the value to **ResetAccountPassword**.
AccountName	String	Yes	test1	The name of the account.
AccountPassword	String	Yes	Test123456	The new password for the account. **Note** • The password must be 8 to 32 characters in length. • The password must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. • Special characters include !@ # $ & ; % ^ * ( ) _ + - =
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ResetAccountPassword
&AccountName=testacc02
&AccountPassword=pwxxxxx
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<ResetAccountPasswordResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ResetAccountPasswordResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.3.8. ResetAccount

Description

You can call this operation to reset the initial account of an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ResetAccount.
DBInstanceId	String	Yes	The ID of the instance.
AccountName	String	Yes	The name of the account.
AccountPassword	String	Yes	The password of the account.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

8.1.2.4. Backup and restoration

8.1.2.4.1. CreateBackup

Description

You can call this operation to manually create a backup. Up to 10 backups can be created for an instance in a single day.

Before you call this operation, ensure that the following requirements are met:

- The instance is in the running state.
- The most recent backup has been completed.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateBackup.
DBInstanceId	String	Yes	The ID of the instance.
BackupMethod	String	No	The backup method. Valid values: Logical and Physical. Default value: Physical. Logical backup cannot be used for instances without databases. SQL Server instances only support physical backup.
BackupStrategy	String	No	The logical backup range. Valid values: db: single-database backup. instance: instance backup. This parameter is valid only when BackupMethod is set to Logical.
DBName	String	No	The name of the database for logical single-database backup. This parameter is valid only when BackupMethod is set to Logical and BackupStrategy is set to db.
BackupType	String	No	The backup type. Valid values: Auto: specifies whether it is a full backup or an incremental backup through automatic calculation. FullBackup: specifies a full backup. Default value: Auto.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action= CreateBackup
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<CreateBackupResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CreateBackupResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.4.2. CloneDBInstance

Restores the data of an original ApsaraDB RDS instance to a new instance. The new instance is called a cloned instance.

Before you call this operation, make sure that the following requirements are met:

- The original instance is in the running state.
- The original instance does not have ongoing migration tasks.
- The log backup feature is enabled for the original instance to support point-in-time recovery.

> **Note**
>
> The new instance has the same whitelist, SQL audit, alert threshold, backup, and parameter settings as the original instance.
>
> The data in the new instance is the same as historical data in the backup file. The clone feature is available only for instances that run MySQL.
>
> Database account information varies based on the following account types:
>
> - If the original instance has a privileged account, instances that are cloned from it also carry the same privileged account information.
> - If the original instance has only standard accounts, instances that are cloned from it also carry the information of the account used when the backup file is generated or at the specified point in time.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CloneDBInstance	The operation that you want to perform. Set the value to CloneDBInstance.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
PayType	String	Yes	Postpaid	The billing method of the instances. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription
ClientToken	String	Yes	ETnLKlblzczshOTUbOCzxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
BackupId	String	No	9026262	The ID of the backup set. You can call the DescribeBackups operation to query backup set IDs.
RestoreTime	String	No	2011-06-11T16:00:00Z	A point in time within the backup retention period to obtain a backup set from. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T16:00:00Z. You must specify at least one of BackupId and RestoreTime.
DBInstanceClass	String	No	mysql.n1.micro.1	Optional. The instance type of the instance. For more information, see Instance types in Appendix. If this parameter is not specified, the new instance is of the same instance type as the original instance.
DBInstanceStorage	String	No	1000	The disk space. Unit: GB. This value must be in 5 GB increments and is the same as that of the primary instance by default. Set the value to 3000 for ApsaraDB RDS instances that are of the dedicated host instance family. Valid values for ApsaraDB RDS instances that are of other instance families: 5 to 2000.
InstanceNetworkType	String	No	VPC	The network type of the new instance. Valid values: • VPC • Classic **Note** The default value is the network type of the original instance.
VPCId	String	No	vpc-uf6f7l4fg90xxxxxxxxxx	The ID of the virtual private cloud (VPC).

Parameter	Type	Required	Example	Description
VSwitchId	String	No	vsw-uf6adz52c2pxxxxxxxxxx	The ID of the vSwitch.
PrivateIpAddress	String	No	172.16.201.69	The internal IP address of the new instance, which must be within the CIDR block supported by the specified vSwitch. The system assigns an internal IP address based on the **VPCId** and **VSwitchId** parameters.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.
DBInstanceId	String	The ID of the instance.
OrderId	Integer	The ID of the order.

Examples

Sample requests

```
https://rds.example.com/?Action=CloneDBInstance
&DBInstanceId=rm-uf6wjk5xxxxxxxxxx
&PayType=Postpaid
&ClientToken=ETnLKlblzczshOTUbOCzxxxxxxx
&<[Common request parameters]>
```

Sample success responses

- XML format

```
<CloneDBInstanceResponse>
      <OrderId>100789370xxxxx</OrderId>
      <DBInstanceId>rm-uf6wjk5xxxxxxx</DBInstanceId>
      <RequestId>1E43AAE0-BEE8-43DA-860D-EAF2AA0724DC</RequestId>
</CloneDBInstanceResponse>
```

- JSON format

```
{
    "OrderId": "100789370xxxxx",
    "DBInstanceId": "rm-uf6wjk5xxxxxxx",
    "RequestId": "1E43AAE0-BEE8-43DA-860D-EAF2AA0724DC"
}
```

8.1.2.4.3. DescribeBackups

Queries the backup sets of an ApsaraDB RDS instance.

Only backup sets in the **Backup Succeeded** state can be used for database restoration.

ApsaraDB RDS allows you to download backup files.

- If DownloadLink is NULL, ApsaraDB RDS does not provide a download URL.
- If DownloadLink is not NULL, you can use the provided URL to download backup files by using Wget (with double quotation marks), a browser, or a user program. The expiration time for this URL is specified by LinkExpiredTime. Use it before the expiration time.

  If the URL has expired, the following error code is displayed:

```
<?xml version="1.0" encoding="UTF-8" ?><Error><Code>AccessDenied</Code><Message>Request has expired.</Message><Expires>2012-12-25T09:47:52.000Z</Expires><ServerTime>2012-12-25T09:49:00.000Z</ServerTime><RequestId>50D9768CA801C2F102005C70</RequestId><HostId>oss-test.aliyun-inc.com</HostId></Error>
```

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackups	The operation that you want to perform. Set the value to DescribeBackups.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
BackupId	String	No	327329803	The ID of the backup set.
BackupStatus	String	No	Success	The status of the backup set. Valid values: • Success • Failed
BackupMode	String	No	Automated	The backup mode. Valid values: • Automated • Manual
StartTime	String	No	2011-06-01T16:00Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	No	2011-06-15T16:00Z	The end of the time range to query. The end time must be later than the start time. Specify the time in the ISO 8601 standard in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: • 30 • 50 • 100 Default value: 30
PageNumber	Integer	No	1	The number of the page to return. Valid values: non-zero positive integers. Default value: **1**.

Response parameters

Parameter	Type	Description
TotalRecordCount	String	The total number of entries returned.
PageNumber	String	The page number of the returned page.
PageRecordCount	String	The number of backup sets on the page.
Items	Array	Details about the backup set.
Backup		
BackupId	String	The ID of the backup set.
DBInstanceId	String	The ID of the instance.
HostInstanceID	String	The No. of the instance that generates the backup set. This parameter is used to indicate whether the primary or secondary instance generates the backup set.
BackupStatus	String	The status of the backup set.
BackupStartTime	String	The start time of the backup. The time follows the ISO 8601 standard in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
BackupEndTime	String	The end time of the backup. The time follows the ISO 8601 standard in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
BackupType	String	The backup type. Valid values: • FullBackup • IncrementalBackup

Parameter	Type	Description
BackupMode	String	The backup mode. Valid values: • Automated • Manual
BackupMethod	String	The backup method. Valid values: • Logical • Physical
BackupDownloadURL	String	The URL that is used to download the backup file over the Internet. If the URL is unavailable, an empty string is returned.
BackupIntranetDownloadURL	String	The URL that is used to download the backup file over an internal network. If the URL is unavailable, an empty string is returned.
BackupSize	Long	The size of the backup set. Unit: bytes.
StoreStatus	String	Indicates whether the backup set can be deleted. Valid values: • Enabled: The backup set can be deleted. • Disabled: The backup set cannot be deleted.
BackupInitiator	String	The initiator of the backup task. Valid values: • System • User
ConsistentTime	Long	The point in time at which the data in the backup set is consistent. The value of this parameter is a timestamp. **Note** If the instance runs MySQL 5.6, a timestamp is returned. Otherwise, the value 0 is returned.
CopyOnlyBackup	String	The backup mode. Valid values: • 0: the standard mode. This mode supports full backup and incremental backup. • 1: the copy-only mode. This mode supports only full backup. **Note** If the instance runs SQL Server, this parameter is returned.

Parameter	Type	Description
IsAvail	Integer	Indicates whether the backup set is available. Valid values: • 0: unavailable • 1: available
MetaStatus	String	The status of the backup set that is used to restore individual databases or tables. Valid values: • OK: The backup set is normal. • LARGE: The backup set contains an abnormally large number of tables. It cannot be used to restore individual databases or tables. • EMPTY: The backup set is generated from a failed backup task. **Note** If an empty string is returned, the backup set cannot be used to restore individual databases or tables.
StorageClass	String	The storage media that is used to store the backup set. Valid values: • 0: normal storage • 1: archived storage
RequestId	String	The ID of the request.
TotalEcsSnapshotSize	Long	The size of the snapshot chain of the instance. Unit: bytes.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeBackups
&DBInstanceId=rm-uf6wjk5xxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBackupsResponse>
  <TotalRecordCount>1</TotalRecordCount>
  <PageRecordCount>1</PageRecordCount>
  <TotalEcsSnapshotSize>0</TotalEcsSnapshotSize>
  <RequestId>B0BBC25A-6B3E-4BFD-A052-48664294E20D</RequestId>
  <PageNumber>1</PageNumber>
  <Items>
        <Backup>
              <BackupMethod>Snapshot</BackupMethod>
              <BackupInitiator>System</BackupInitiator>
              <StorageClass>0</StorageClass>
              <BackupMode>Automated</BackupMode>
              <BackupSize>161061273600</BackupSize>
              <BackupId>677987116</BackupId>
              <IsAvail>1</IsAvail>
              <HostInstanceID>9232003</HostInstanceID>
              <BackupDBNames></BackupDBNames>
              <StoreStatus>Disabled</StoreStatus>
              <DBInstanceId>rm-uf6wjk5xxxxxxx</DBInstanceId>
              <BackupDownloadURL></BackupDownloadURL>
              <BackupEndTime>2020-07-11T05:07:33Z</BackupEndTime>
              <BackupStartTime>2020-07-11T05:07:33Z</BackupStartTime>
              <ConsistentTime>0</ConsistentTime>
              <BackupType>FullBackup</BackupType>
              <MetaStatus></MetaStatus>
              <BackupScale>DBInstance</BackupScale>
              <BackupStatus>Success</BackupStatus>
              <BackupLocation>OSS</BackupLocation>
        </Backup>
  </Items>
  <TotalBackupSize>161061273600</TotalBackupSize>
</DescribeBackupsResponse>
```

`JSON` format

```
{
    "TotalRecordCount": 1,
    "PageRecordCount": 1,
    "TotalEcsSnapshotSize": "0",
    "RequestId": "B0BBC25A-6B3E-4BFD-A052-48664294E20D",
    "PageNumber": 1,
    "Items": {
        "Backup": [
            {
                "BackupMethod": "Snapshot",
                "BackupInitiator": "System",
                "StorageClass": "0",
                "BackupMode": "Automated",
                "BackupSize": 161061273600,
                "BackupId": 677987116,
                "IsAvail": 1,
                "HostInstanceID": 9232003,
                "BackupDBNames": "",
                "StoreStatus": "Disabled",
                "DBInstanceId": "rm-uf6wjk5xxxxxxx",
                "BackupDownloadURL": "",
                "BackupEndTime": "2020-07-11T05:07:33Z",
                "BackupStartTime": "2020-07-11T05:07:33Z",
                "ConsistentTime": "0",
                "BackupType": "FullBackup",
                "MetaStatus": "",
                "BackupScale": "DBInstance",
                "BackupStatus": "Success",
                "BackupLocation": "OSS"
            }
        ]
    },
    "TotalBackupSize": "161061273600"
}
```


8.1.2.4.4. CreateTempDBInstance

Description

Note You can create a temporary instance based on a backup set or a point in time within the past seven days. When a temporary instance is created, accounts and databases inherit the backup set data.

You can call this operation to create a temporary instance. Before you call this operation, ensure that the following requirements are met:

- The instance is in the running state.
- The instance is not undergoing any migration tasks.
- The instance is not locked by the system.
- The current status of the instance backup set is Success.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateTempDBInstance.
DBInstanceId	String	Yes	The ID of the instance to be created.
BackupId	Integer	No	The ID of the backup set.
RestoreTime	String	No	The restoration time of the backup set. It can be any time within the past seven days that is more than 30 minutes before the current time. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Example: 2011-06-11T16:00:00Z.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
TempDBInstanceId	String	The ID of the temporary instance.

Examples

Sample requests

```
https://rds.example.com/?Action=CreateTempDBInstance
&BackupId=90262
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample responses

- XML format

```
<CreateTempDBInstanceResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<TempDBInstanceId>sub-xxxxx</TempDBInstanceId>
</CreateTempDBInstanceResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
"TempDBInstanceId":"sub-xxxxx"}
```

8.1.2.4.5. DescribeBackupPolicy

Description

You can call this operation to query the backup policy configured for the system. RDS periodically backs up an instance based on the user-defined system configuration.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeBackupPolicy.
DBInstanceId	String	Yes	The ID of the instance for which the backup policy is queried.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
BackupRetentionPeriod	String	The data backup retention period. Unit: days. Valid values: 1 to 30.
PreferredBackupTime	String	The backup time. The time is in the HH:mmZ to HH:mmZ format.
PreferredBackupPeriod	String	The backup day. Valid values: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday.
BackupLog	String	The log backup status. Valid values: Enable and Disabled.
LogBackupRetentionPeriod	String	The log backup retention period. Unit: days. Valid values: 1 to 30.

8.1.2.4.6. ModifyBackupPolicy

Description

You can call this operation to modify a backup policy. RDS periodically backs up instances based on the user-defined system configuration.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyBackupPolicy.
DBInstanceId	String	Yes	The ID of the instance for which the backup policy is modified.
PreferredBackupTime	String	Yes	The backup time. Format: HH:mmZ to HH:mmZ.

Parameter	Type	Required	Description
PreferredBackupPeriod	String	Yes	The backup day. Valid values: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday.
BackupRetentionPeriod	String	No	The data backup retention period. Unit: days. Valid values: 1 to 30. Default value: 7.
BackupLog	String	No	The log backup status. Valid values: Enable and Disabled. Default value: Enable.
LogBackupRetentionPeriod	String	No	The log backup retention period. It cannot exceed BackupRetentionPeriod. Unit: days. Valid values: 1 to 30. When you enable log backup, you can configure the log backup retention period. This operation is only supported on MySQL, PostgreSQL, and PPAS.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyBackupPolicy
&DBInstanceId=rds-xxxxx
&PreferredBackupTime=00:00Z-01:00Z
&PreferredBackupPeriod=Monday
&<Common request parameters>
```

Sample responses

- XML format

```
<ModifyBackupPolicyResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyBackupPolicyResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.4.7. RestoreDBInstance

Description

Restores a backup set to an instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is not undergoing migration tasks.
- The instance is not locked by the system.
- The backup set is in the Backup Succeeded state.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to RestoreDBInstance.
DBInstanceId	String	Yes	The ID of the instance.
BackupId	Integer	Yes	The ID of the backup set.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=RestoreDBInstance
&BackupId=103312
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<RestoreDBInstanceResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</RestoreDBInstanceResponse>
```

- JSON format

```
{"RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.4.8. DeleteBackup

Deletes backup sets of an instance.

Backup sets of only the instance itself are deleted. Backup sets of the associated instances such as read-only, disaster recovery, and cloned instances are not deleted.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance runs MySQL, PostgreSQL, or PolarDB.
- If the log backup feature is disabled, ApsaraDB RDS instances cannot be restored by point in time. You can delete data backup sets that are retained for more than seven days.
- If the log backup feature is enabled and the retention period of log backups is less than the retention period of data backups, the data backup sets that are retained for more than the retention period of log backups can be deleted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBackup	The operation that you want to perform. Set the value to DeleteBackup.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
BackupId	String	Yes	324909958	The ID of the backup set. You can call the DescribeBackups operation to query the backup set IDs. You can enter up to 100 backup set IDs in a single request. Separate multiple IDs with commas (,). Among the query results of DescribeBackups, you can delete backup sets that are only in the enabled state.

Response parameters

This operation returns only common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=DeleteBackup
&DBInstanceId=rm-uf6wjk5xxxxxxx
&BackupId=324909958
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBackupResponse>
      <RequestId>37441409-FFD1-40AA-8EC5-9ECF5E2F7C29</RequestId>
</DeleteBackupResponse>
```

`JSON` format

```
{
    "RequestId": "37441409-FFD1-40AA-8EC5-9ECF5E2F7C29"
}
```

8.1.2.5. Monitoring management

8.1.2.5.1. DescribeResourceUsage

Description

You can call this operation to query the resource usage information of an instance. When this operation is called, the system returns the amount of space occupied by the specified instance.

DBInstanceId is used to obtain instance resource usage information.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeResourceUsage.
DBInstanceId	String	Yes	The ID of the instance for which the resource usage information is queried.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
DBInstanceId	String	The ID of the instance for which the resource usage information was queried.
Engine	String	The type of the database.
DiskUsed	Integer	The total space occupied by both data files and log files. Unit: Byte. -1 indicates no data.
DataSize	Integer	The disk space that is used to store user data. Unit: Byte. -1 indicates no data.
LogSize	Integer	The disk space that is used to store log files. Unit: Byte. -1 indicates no data.
BackupSize	Integer	The total space occupied by backup data. Unit: Byte. -1 indicates no data.

Parameter	Type	Description
ColdBackupSize	Integer	The total space occupied by cold backup data. Unit: Byte. -1 indicates no data.
SQLSize	Integer	The total space occupied by SQL data. Unit: Byte. -1 indicates no data.

8.1.2.5.2. DescribeDBInstancePerformance

Description

You can call this operation to query the performance metrics of an instance over a specified period of time based on the performance parameters.

There are three output formats based on different query time ranges:

- When the query time range is less than or equal to one day, performance metrics are displayed at one-minute intervals.
- Queries with the time range from one to seven days are not supported.
- When the query time range is greater than seven days but less than or equal to 15 days, performance metrics are displayed at one-hour intervals.
- Queries with the time range greater than 15 days but less than 30 days are not supported.
- When the query time range is greater than or equal to 30 days but less than or equal to one year, performance metrics are displayed at one-day intervals.

Note When the instance space usage key is MySQL_SpaceUsage or SQLServer_SpaceUsage, performance metrics can be queried only when the time range is less than or equal to one day.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeDBInstancePerformance.
DBInstanceId	String	Yes	The ID of the instance.
Key	Integer	Yes	The performance metrics. Separate performance metrics with commas (,). For more information, see Performance parameters.
StartTime	String	Yes	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the YYYY-MM-DDTHH:mmZ format. Example: 2012-06-11T15:00Z.
EndTime	String	Yes	The end of the time range to query. Specify the time in the ISO 8601 standard in the YYYY-MM-DDTHH:mmZ format. Example: 2012-06-11T15:00Z.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters
DBInstanceId	String	The ID of the instance.
Engine	String	The engine of the database.
StartTime	String	The beginning of the time range where the query was executed. The time follows the ISO 8601 standard in the YYYY-MM-DDTHH:mmZ format. Example: 2011-05-30T03:29Z.
EndTime	String	The end of the time range where the query was executed. The time follows the ISO 8601 standard in the YYYY-MM-DDTHH:mmZ format. Example: 2011-05-30T03:29Z. The end time must be later than the start time.
PerformanceKeys	List<PerformanceKey>	The array that consists of PerformanceKey data. Format: {perf1, perf2, perf3, ...}.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeDBInstancePerformance
&DBInstanceId=rds-xxxxx
&key= MySQL_xxxxx
&StartTime=2013-01-11T15:00:00Z
&EndTime=2013-06-05T15:00:00Z
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeDBInstancePerformanceResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<DBInstanceID>rds-xxxxx</DBInstanceID>
<StartTime>2013-01-11T15:00:00Z</StartTime>
<EndTime>2013-10-17T15:00Z</EndTime>
<Engine>MySQL</Engine>
<PerformanceKeys>
<PerformanceKey>
<Key>MySQL_xxxxx</Key>
<Unit>KB</Unit>
<ValueFormat>recv_k&amp;sent_k</ValueFormat>
<Values><Values/>
</PerformanceKey>
</PerformanceKeys>
</DescribeDBInstancePerformanceResponse>
```

- JSON format

```
{ "RequestId"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC,
"DBInstanceID": rds-xxxxx,
"StartTime": "2012-06-11T15:00Z",
"EndTime": "2013-10-17T15:00Z",
"Engine": "MySQL",
"PerformanceKeys":
    { PerformanceKey[ {
        "Key": "MySQL_xxxxx",
        "Unit": "KB",
        "ValueFormat": "recv_k&sent_k",
        "Values": { "PerformanceValue":[] } } ] }}
```

8.1.2.5.3. DescribeDBInstanceMonitor

Description

You can call this operation to query the monitoring behavior of an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeDBInstanceMonitor.
DBInstanceId	String	Yes	The ID of the instance for which the monitoring behavior is queried.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Parameter	Type	Description
Period	String	The monitoring period. Unit: seconds.

8.1.2.5.4. ModifyDBInstanceMonitor

Changes the monitoring frequency of an ApsaraDB RDS instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceMonitor	The operation that you want to perform. Set the value to ModifyDBInstanceMonitor.
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
Period	String	Yes	60	The monitoring frequency. Valid values: • 60 • 300 Unit: seconds.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyDBInstanceMonitor
&DBInstanceId=rm-uf6wjk5xxxxxxx
&Period=60
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceMonitorResponse>
      <requestId>52B9805C-432C-4ED1-83FD-2F916B6D2733</requestId>
</ModifyDBInstanceMonitorResponse>
```

`JSON` format

```
{
    "requestId": "52B9805C-432C-4ED1-83FD-2F916B6D2733"
}
```

8.1.2.6. Parameter management

8.1.2.6.1. DescribeParameterTemplates

Description

You can call this operation to query the parameter template list. The list includes parameter names, default parameter values, whether they can be modified, whether the database must be restarted for the parameters to take effect, and regular expressions acting as parameter validation rules.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeParameterTemplates.
Engine	String	Yes	The engine of the database. Valid values: • mysql: MySQL • mssql: SQL Server • PostgreSQL: PostgreSQL • POLARDB: PolarDB
EngineVersion	String	Yes	The engine version of the database. Valid values: • MySQL: 5.6 and 5.7 • SQL Server: 2008 R2 • PostgreSQL: 9.4 and 10.0 • PolarDB: 11

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
Engine	String	The engine of the database.

Parameter	Type	Description
EngineVersion	String	The engine version of the database.
ParameterCount	Integer	The number of parameters.
Parameters	List<TemplateRecord>	The array that consists of TemplateRecord data. Format: {parameter1, parameter2, parameter3, ...}.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeParameterTemplates
&Engine=MySQL
&EngineVersion=5.6
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeParameterTemplatesResponse>
<Engine>mysql</Engine>
<EngineVersion>5.6</EngineVersion>
<ParameterCount>1</ParameterCount>
<Parameters>
<TemplateRecord>
<CheckingCode>[0-100]</CheckingCode>
<ForceRestart>True</ForceRestart>
<Factor>1</Factor>
<ParameterDescription>test</ParameterDescription>
<ParameterName>fill factor</ParameterName>
<ParameterValue>0</ParameterValue>
<ForceModify>True</ForceModify>
<Unit>INT</Unit>
</TemplateRecord>
</Parameters>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</DescribeParameterTemplatesResponse>
```

- JSON format

```
{"Engine": "mysql",
"EngineVersion": "5.6",
"ParameterCount":1,
"Parameters":
    { "TemplateRecord": [ {
        "ParameterDescription": "test",
        "ForceRestart": "True",
        "CheckingCode": "[0-100]"
        "Factor":"1",
        "ParameterName":"fill factor",
        "ParameterValue":"0",
        "ForceModify":"True",
        "Unit":"INT" } ] },
"RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```


8.1.2.6.2. DescribeParameters

Description

You can call this operation to query the current instance parameter configuration.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeParameters.
DBInstanceId	String	Yes	The ID of the instance.

Response parameters

Parameter	Type	Description
<Common response parameters>	N/A	Common response parameters.
Engine	String	The engine of the database.
EngineVersion	String	The engine version of the database.
RunningParameters	List<DBInstanceParameter>	The array that consists of running DBInstanceParameter data. Format: {parameter1,parameter2,parameter3, ...}.

ConfigParameters	List<DBInstanceParameter>	The array that consists of synchronizing DBInstanceParameter data. Format: {parameter1,parameter2,parameter3, ...}.

DBInstanceParameter parameters

Parameter	Type	Description
ParameterName	String	The name of the parameter.
ParameterValue	String	The value of the parameter.
ParameterDescription	String	The description of the parameter.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeParameters
&DBInstanceId=rds-xxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeParametersResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<Engine>mysql</Engine >
<EngineVersion>5.6</EngineVersion>
<RunningParameters>
<DBInstanceParameter>
<ParameterDescription>test</ParameterDescription>
<ParameterName>fill factor</ParameterName>
<ParameterValue>0</ParameterValue>
</DBInstanceParameter>
</RunningParameters>
<ConfigParameters>
<DBInstanceParameter>
<ParameterDescription>test1</ParameterDescription>
<ParameterName>fill factor</ParameterName>
<ParameterValue>50</ParameterValue>
</DBInstanceParameter>
</ConfigParameters>
</DescribeParametersResponse>
```

- JSON format

```
{ "ConfigParameters": {
    "DBInstanceParameter": [ {
        "ParameterDescription": "test",
        "ParameterName": "fill factor",
        "ParameterValue": "50" } ] },
    "Engine": "mysql",
    "EngineVersion": "5.6",
    "RunningParameters": {
        "DBInstanceParameter": [ {
            "ParameterDescription": "test1",
            "ParameterName": "fill factor",
            "ParameterValue": "0" } ] },
    "RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```


8.1.2.6.3. ModifyParameter

Description

You can call this operation to modify instance parameters. After you submit a request, RDS assigns a task to apply new parameters to the instance. If there are any parameter modifications that require the database to be restarted, RDS restarts the database.

Before you call this operation, ensure that the following requirements are met:

- The instance is in the running state.
- The instance is not locked by the system.

There are three types of parameter values:

- 1 to 65,535: indicates a numerical range. Regular identification is used to extract the minimum and maximum values. The input parameter is then verified based on the extracted minimum and maximum values. The parameter must be a multiple of a divisible factor.
- utf8 | gbk | latin1: indicates a set value determination rule. Regular identification is used to extract the fixed value. The input parameter is then verified based on these fixed values.
- Others: These must be implemented with regular expressions.

Before assigning the task, RDS checks the parameter as follows:

1. Whether the parameter exist.
2. Whether the parameter can be modified.
3. Whether the parameter is valid.

   If the parameter is invalid, RDS returns the 400 HTTP status code and information about the invalid parameter. Example:


```
{"HttpStatusCode":400,
"Code":"InvalidParameter.Format",
"Message":"Specified parameter is not valid.[auto_increment_increment:a,character_set_client:41]"}
```


Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifyParameter.
DBInstanceId	String	Yes	The ID of the instance for which parameters are modified.
Parameters	String	Yes	The JSON string for the parameter and its value. The parameter value must be of the string type. {"auto_increment_increment":"1", "character_set_client":"utf8"}.
Forcerestart	String	No	Specifies whether to forcibly restart the database. Valid values: true and false. If a parameter can take effect only after database restart, Forcerestart must be set to true. Otherwise, the parameter modification will not take effect. Default value: false.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=ModifyeParameter
&DBInstanceId=rds-xxxxx
&Parameters={"key_buffer_size":"456","character_set_client":"gbk"}
&<Common request parameters>
```

Sample responses

- XML format

```
<ModifyeParameterResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</ModifyeParameterResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",}
```

8.1.2.7. Log management

8.1.2.7.1. DescribeSlowLogs

Description

You can call this operation to query the slow log summary of the databases in a specified instance over a specified period of time.

This operation supports paged query.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeSlowLogs.
DBInstanceId	String	Yes	The ID of the instance.
StartTime	String	Yes	The beginning of the time range to query. Specify the date in the ISO 8601 standard in the YYYY-MM-DDZ format. Example: 2011-05-30Z.
EndTime	String	Yes	The end of the time range to query. The end date must be later than the start date. Specify the date in the ISO 8601 standard in the YYYY-MM-DDZ format. Example: 2011-05-30Z.
DBName	String	No	The name of the database.
SortKey	String	No	The basis on which query results are sorted. Valid values: TotalExecutionCounts: in descending order of execution times. TotalQueryTimes: in descending order of the total execution duration. TotalLogicalReads: in descending order of the total number of logical reads. TotalPhysicalReads: in descending order of the total number of physical reads. This parameter is applicable to SQL Server instances. It must be used when you query SQL Server Instances.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1. Default value: 1.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
Engine	String	The engine of the database.
StartTime	String	The beginning of the time range where the query was executed. The date follows the ISO 8601 standard in the YYYY-MM-DDZ format. Example: 2011-05-30Z.
EndTime	String	The end of the time range where the query was executed. The date follows the ISO 8601 standard in the YYYY-MM-DDZ format. Example: 2011-05-30Z.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The page number of the returned page.
PageRecordCount	Integer	The number of SQL slow queries on the current page.
Items	List<SQLSlowLog>	The list of slow logs.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeSlowLogs
&DBInstanceId=rds-xxxxx
&StartTime=2011-06-11Z
&EndTime=2011-12-11Z
&SortKey= Totaxxxxx
&<Common request parameters>
```

Sample success responses

- XML format

```
<DescribeSlowLogsResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<DBInstanceID>rds-xxxxx</DBInstanceID>
<Engine>MySQL</Engine>
<StartTime>2011-06-11Z</StartTime>
<EndTime>2011-12-11Z</EndTime>
<TotalRecordCount>1</TotalRecordCount>
<PageNumber>1</PageNumber>
<PageRecordCount>1</PageRecordCount>
<Items>
<SQLSlowLog>
<SQLText>update test.zxb set id=0 limit 1</SQLText>
<MySQLTotalExecutionCounts>178</MySQLTotalExecutionCounts>
<MySQLTotalExecutionTimes>189</MySQLTotalExecutionTimes>
<TotalLogicalReadcounts>89</TotalLogicalReadcounts>
<TotalPhysicalReadcounts>90</TotalPhysicalReadcounts>
<ReportTime>2013-11-12Z</ReportTime>
</SQLSlowLog>
</Items>
</DescribeSlowLogsResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
"StartTime":"2011-06-11Z ",
"EndTime":"2011-12-11Z ",
"Engine":"MySQL",
"PageNumber":1,
"PageRecordCount":1,
"TotalRecordCount":1,
"Items":{
    "SQLSlowLog":[{
        "SQLText":”update test.zxb set id=0 limit 1”,
        "MySQLTotalExecutionCounts":178,
        "MySQLTotalExecutionTimes":189,
        "TotalLogicalReadcounts":89,
        "TotalPhysicalReadcounts":90,
        "ReportTime":"2013-11-12Z " }]}}
```

8.1.2.7.2. DescribeSlowLogRecords

Description

You can call this operation to query the slow log details of the databases in a specified instance over a specified period of time. This operation is only supported on MySQL instances.

Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeSlowLogRecords.
DBInstanceId	String	Yes	The ID of the instance to which the database belongs.
StartTime	String	Yes	The beginning of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T15:00Z.
EndTime	String	Yes	The end of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T16:00Z.
DBName	String	No	The name of the database.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
Engine	String	The type of the database.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of SQL slow queries on the current page.
Items	List<SQLSlowRecord>	-

SQLSlowLog parameters

Parameter	Type	Description
HostAddress	String	The host address to connect the database.
DBName	String	The name of the database.
SQLText	String	The query statement.

Parameter	Type	Description
QueryTimes	Long	The execution time of the slow query. Unit: seconds.
LockTimes	Long	The lock time of the slow query. Unit: seconds.
ParseRowCounts	Long	The number of entries parsed.
ReturnRowCounts	Long	The number of entries returned.
ExecutionStartTime	String	The beginning of the time range where the query was executed. The time is in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T15:00:08Z.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeSlowLogRecords
&DBInstanceId=rds-xxxxx
&StartTime=2011-06-11T15:00Z
&EndTime=2011-06-11T16:00Z
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeSlowLogRecordsResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<DBInstanceID>rds-xxxxx</DBInstanceID>
<Engine>MySQL</Engine>
<TotalRecordCount>1</TotalRecordCount>
<PageNumber>1</PageNumber>
<PageRecordCount>1</PageRecordCount>
<Items>
<SQLSlowRecord>
<HostAddress>192.168.0.123</HostAddress>
<DBName>test</DBName>
<SQLText>update test.zxb set id=0 limit 1</SQLText>
<QueryTimes>123</QueryTimes>
<LockTimes>12</LockTimes>
<ParseRowCounts>125</ParseRowCounts>
<ReturnRowCounts>1</ReturnRowCounts>
<ExecutionStartTime>2011-06-11T15:00:08Z</ExecutionStartTime>
</SQLSlowRecord>
</Items>
</DescribeSlowLogRecordsResponse>
```

- JSON format

```
{ "RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
"Engine":"MySQL",
"PageNumber":1,
"PageRecordCount":1,
"TotalRecordCount":1,
"Items":{
    "SQLSlowRecord":[{
        HostAddress:”192.168.0.123”,
        DBName:”test”,
        SQLText:”update test.zxb set id=0 limit 1”,
        QueryTimes:”123”,
        LockTimes:”12”,
        ParseRowCounts:”125”,
        ReturnRowCounts:”1”,
        ExecutionStartTime:”2011-06-11T15:00:08Z”}]}}
```


8.1.2.7.3. DescribeErrorLogs

Description

You can call this operation to query the error logs generated for an instance over a specified period of time.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeErrorLogs.
DBInstanceId	String	Yes	The ID of the instance for which error logs are queried.
StartTime	String	Yes	The beginning of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-05-30T12:10Z.
EndTime	String	Yes	The end of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-05-30T20:10Z.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of error logs on the current page.
Items	List<ErrorLogs>	-

ErrorLogs parameters

Parameter	Type	Description
ErrorInfo	String	The error log information.
CreateTime	String	The time when the error log was generated. The time is in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-05-30T12:11:4Z.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeErrorLogs.
&DBInstanceId=rds-xxxxx
&StartTime=2011-06-11T15:00Z
&EndTime=2011-06-11T20:00Z
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeErrorLogsResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<TotalRecordCount>1</TotalRecordCount>
<PageNumber>1</PageNumber>
<PageRecordCount>1<PageRecordCount>
<Items>
<ErrorLog>
<ErrorInfo>spid52 DBCC TRACEON 3499, server process ID (SPID) 52. This is an informationa
l message only; no user action is required</ErrorInfo>
<CreateTime>2013-06-04T15:00:00</CreateTime>
</ErrorLog>
</Items>
</DescribeErrorLogsResponse>
```

- JSON format

```
{"RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
"PageNumber":1,
"TotalRecordCount":1,
"PageRecordCount":1,
"Items":{
    "ErrorLog":[{
        ErrorInfo:”spid52 DBCC TRACEON 3499, server process ID (SPID) 52. This is an info
rmational message only; no user action is required”,
        CreateTime:”2013-06-04T15:00:00”}]}}
```

8.1.2.7.4. DescribeBinlogFiles

Description

You can call this operation to query binlogs of a MySQL instance. This operation supports querying by page. RDS provides binlog files for you to download.

- When the DownloadLink is NULL, RDS does not provide a download URL.
- When DownloadLink is not NULL, you can use this URL to download the backup file through Wget (with double quotation marks), a browser, or a user program. The expiration time for this URL is specified by LinkExpiredTime. Use it before the expiration time.

  If the BackupSet has expired, the following error code is displayed:

```
<Error>
<Code>AccessDenied</Code>
<Message>Request has expired. </Message>
<Expires>2012-12-25T09:47:52.000Z</Expires>
<ServerTime>2012-12-25T09:49:00.000Z</ServerTime>
<RequestId>50D9768CA801C2F102005C70</RequestId>
<HostId>oss-test.aliyun-inc.com</HostId>
</Error>
```

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeBinlogFiles.
DBInstanceId	String	Yes	The ID of the instance for which binlogs are queried.
StartTime	String	Yes	The beginning of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format.
EndTime	String	Yes	The end of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. The end time must be later than the start time.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.

Parameter	Type	Required	Description
PageNumber	Integer	No	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
TotalRecordCount	Integer	The total number of binlog files.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of binlog files on the current page.
Items	List<BinLogFile>	-

BinLogFile parameters

Parameter	Type	Description
FileSize	Long	The size of a binlog file. Unit: Byte.
LogBeginTime	String	The beginning of the time range where the binlog was executed.
LogEndTime	String	The end of the time range where the binlog was executed.
DownloadLink	String	The HTTP-compliant download URL. If this parameter is set to NULL, no download URL exists.
HostInstanceID	String	The ID of the instance to which the binlog belongs. This parameter indicates whether the binlog is from the primary or secondary instance.
LinkExpiredTime	String	The URL expiration time. The time is in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T15:00:00Z.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeBinlogFiles
&DBInstanceId=rds-xxxxx
&StartTime=2011-06-11T15:00:00Z
&EndTime=2013-06-05T15:00:00Z
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeBinlogFilesResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<TotalRecordCount>1</TotalRecordCount>
<PageNumber>1</PageNumber>
<PageRecordCount>1<PageRecordCount>
<Items>
<BinLogFile>
<FileSize>123</FileSize>
<LogBeginTime>2013-06-01T15:00:00Z</LogBeginTime>
<LogEndTime>2013-06-02T18:00:00Z</LogEndTime>
<DownloadLink>http://rdslog-real.oss.aliyuncs.com/custins47742/hostins46770/mysql-bin. 00
0120.zip?spm=0.0.0.0.eMQKjs&OSSAccessKeyId=c9gzsqpauxxxxx&Expires=1384916927&Signature=07
TMgM3xxxxx</DownloadLink>
<LinkExpiredTime>2013-06-09T18:00:00Z</LinkExpiredTime>
</BinLogFile>
</Items>
</DescribeBinlogFilesResponse>
```

- JSON format

```
{ "RequestId":"66816822-CEC1-4C8D-AB26-2530A7D4DCA5",
"PageNumber":1,
"TotalRecordCount":1,
"PageRecordCount":1,
"Items":{
    "BinLogFile":[{
        FileSize:”123”,
        LogBeginTime:”2013-06-01T15:00:00Z”,
        LogEndTime:”2013-06-02T18:00:00Z”,
        DownloadLink:”http://rdslog-real.oss.aliyuncs.com/custinsxxxxx/hostinsxxxxx/mysql
-bin. 000120.zip?spm=0.0.0.0.eMQKjs&OSSAccessKeyId=c9gzsqpauxxxxx&Expires=1384916927&Sign
ature=07TMgM3xxxxx”,
        LinkExpiredTime”2013-06-09T18:00:00Z”}]}}
```

8.1.2.7.5. DescribeSQLCollectorPolicy

Description

You can call this operation to check whether SQL collection is enabled for a specified RDS instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeSQLCollectorPolicy.
DBInstanceId	String	Yes	The ID of the instance for which SQL collection is enabled or disabled.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
SQLCollectorStatus	String	Indicates whether SQL collection is enabled. Valid values: Enable and Disabled.

8.1.2.7.6. ModifySQLCollectorPolicy

Description

You can call this operation to enable or disable SQL collection for the specified RDS instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ModifySQLCollectorPolicy.
DBInstanceId	String	Yes	The ID of the instance for which SQL collection is enabled or disabled.
SQLCollectorStatus	String	Yes	Specifies whether to enable SQL collection. Valid values: Enable and Disabled.

Response parameters

This operation returns only common response parameters.

8.1.2.7.7. DescribeSQLLogRecords

Description

You can call this operation to query the SQL audit logs generated for an instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeSQLLogRecords.
DBInstanceId	String	Yes	The ID of the instance for which SQL audit logs are queried.

Parameter	Type	Required	Description
Database	String	No	The name of the database. All databases are selected by default.
User	String	No	The name of the user. All users are selected by default.
Form	String	No	The file generation form for audit logs. Valid values: File and Stream. If this parameter is set to File, only common parameters are returned, and you must call the DescribeSQLLogFiles operation to obtain the final download file address. If this parameter is set to Stream, data streams are returned. Default value: Stream.
QueryKeywords	String	No	The keywords used for query. Up to 10 keywords can be entered at a time. Separate multiple keywords with spaces.
StartTime	String	Yes	The beginning of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format.
EndTime	String	Yes	The end of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. The end time must be later than the start time.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, 100, and 200. Default value: 100.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of SQL logs on the current page.
Items	List<SQLRecord>	The array that consists of SQLRecord data.

SQLRecord parameters

Parameter	Type	Description
DBName	String	The name of the database.
AccountName	String	The name of the account.

Parameter	Type	Description
HostAddress	String	The IP address of the client.
SQLText	String	The SQL statement.
TotalExecutionTimes	Long	The amount of time taken to execute the operation. Unit: microseconds.
ReturnRowCounts	Long	The number of entries returned.
ThreadID	String	The thread ID.
ExecuteTime	String	The execution time. The time is in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-05-30T12:11:20Z.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeSQLLogRecords
&DBInstanceId=rds-xxxxx
&StartTime=2011-06-11T15:00:00Z
&EndTime=2013-06-05T15:00:00Z
&<Common request parameters>
```

Sample responses

- XML format

```
<DescribeSQLLogRecordsResponse>
<PageNumber>1</PageNumber>
    <RequestId>08A3B71B-FE08-4B03-974F-CC7EA6DB1828</RequestId>
    <TotalRecordCounts>1</TotalRecordCounts>
    <SQLItems>
        <SQLItem>
            <ReturnRowCounts>34</ReturnRowCounts>
            <TotalExecutionTimes>12</TotalExecutionTimes>
            <HostAddress>192.168.xx.xx</HostAddress>
            <ExecuteTime>2011-06-11T15:00:23Z</ExecuteTime>
            <SQLText>update test.zxb set id=0 limit 1</SQLText>
            <AccountName>accounttest</AccountName>
            <DBName>test</DBName>
        </SQLItem>
    </SQLItems>
    <ItemsCounts>1</ItemsCounts>
</DescribeSQLLogRecordsResponse>
```

- JSON format

```
{"PageNumber":1,
    "RequestId":"08A3B71B-FE08-4B03-974F-CC7EA6DB1828",
    "TotalRecordCounts":1,
    "SQLItems":{
        "SQLItem":[
            {
                "ReturnRowCounts":34,
                "TotalExecutionTimes":12,
                "HostAddress":"192.168.xx.xx",
                "ExecuteTime":"2011-06-11T15:00:23Z",
                "SQLText":"update test.zxb set id=0 limit 1",
                "AccountName":"accounttest",
                "DBName":"test"
            }
        ]
    },
    "ItemsCounts":1
}
```


8.1.2.7.8. DescribeSQLLogFiles

Description

You can call this operation to query SQL audit files.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeSQLLogFiles.
DBInstanceId	String	Yes	The ID of the instance for which SQL audit files are queried.

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of entries on the current page.
Items	List<LogFile>	The array that consists of audit file data.

LogFile parameters

Parameter	Type	Description
FileID	Integer	The ID of an audit log file.
DBInstanceId	String	The ID of the instance for which SQL audit files were queried.
LogStatus	String	The status of SQL audit files. Valid values: • Success • Failed • Generating
LogStartTime	String	The beginning of the time range where the audit log was executed.
LogEndTime	String	The end of the time range where the audit log was executed.
LogDownloadURL	String	The file download URL. If the download URL is unavailable, this parameter will be empty.
LogSize	Long	The size of an audit log file. Unit: Byte.

8.1.2.8. Data migration

8.1.2.8.1. CreateUploadPathForSQLServer

Description

You can call this operation to create the account and password of the file server and the file path. Based on this information, you can upload data files. After the upload is complete, you can migrate external data.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateUploadPathForSQLServer.
DBInstanceId	String	Yes	The ID of the instance.
DBName	String	Yes	The name of the database.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.
InternetFtpServer	String	The IP address of the file server on the public network.

Parameter	Type	Description
InternetPort	Integer	The port of the file server on the public network.
IntranetFtpServer	String	The IP address of the file server on the internal network.
IntranetPort	Integer	The port of the file server on the internal network.
UserName	String	The username used to log on to the file server.
Password	String	The password used to log on to the file server.
FileName	String	The name of the data file with the extension.

Examples

Sample requests

```
https://rds.example.com/?Action= CreateUploadPathForSQLServer
&DBInstanceId=rds-xxxxx
&DBName=testdb01
&<Common request parameters>
```

Sample success responses

- XML format

```
<CreateUploadPathForSQLServerResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<InternetFtpServer>10.230.239.1</InternetFtpServer>
<InternetPort>3021</InternetPort>
<IntranetFtpServer></IntranetFtpServer>
<UserName>userxxx</UserName>
<Password>pwxxxxx</Password>
<FileName>testdb01_xxxxx.bak</FileName>
</CreateUploadPathForSQLServerResponse>
```

- JSON format

```
{"RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC",
 "InternetFtpServer ":"10.230.239.1",
 "InternetPort":3021,
 "IntranetFtpServer":"",
 "UserName":"userxxx",
 "Password":"pwxxxxx",
 "FileName":"testdb01_xxxxx.bak"}
```

8.1.2.8.2. DescribeFilesForSQLServer

Description

You can call this operation to query files on the file server.

SQLServer users can obtain their accounts to upload data files to the file server by calling the CreateUploadPathForSQLServer operation.

After the data files are uploaded, RDS updates their status. You can also call this operation to check whether the data files are available. If they are available, you can import data and obtain the information about the import process.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeFilesForSQLServer.
DBInstanceId	String	Yes	The ID of the instance for which files are queried.
StartTime	String	Yes	The beginning of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T15:00Z.
EndTime	String	Yes	The end of the time range where the query is performed. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. Example: 2011-06-11T16:00Z. The end time must be later than the start time.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1 but must be equal to or smaller than the maximum Integer value. Default value: 1.

Response parameters

Parameter	Type	Description
DBInstanceId	String	The ID of the instance for which files were queried.
TotalRecordCount	Integer	The total number of entries.
PageNumber	Integer	The number of the page returned.
PageRecordCount	Integer	The number of SQL slow queries on the current page.
Items	List<SQLServerUploadFile>	-

SQLServerUploadFile parameters

Parameter	Type	Description
DBName	String	The name of the database.

Parameter	Type	Description
FileName	String	The name of the data file, with the extension.
FileSize	Long	The size of the data file. Unit: bytes.
InternetFtpServer	String	The file server.
InternetPort	Integer	The port of the file server on the public network.
IntranetFtpserver	String	The IP address of the file server on the internal network.
Intranetport	Integer	The port of the file server on the internal network.
UserName	String	The username used to log on to the file server.
Password	String	The password used to log on to the file server.
FileStatus	String	The file status. Valid values: Unavailable, Available, NotStarted, Uploading, UploadFailed, Virus, Deleted, and Success.
CreationTime	String	The time when the FTP file was created. The time is in the yyyy-MM-ddThh:mmZ format. Example: 2011-05-30 T12:11:4Z.

Examples

Sample requests

```
https://rds.example.com/?Action=DescribeFilesForSQLServer
&DBInstanceId=rds-xxxxx
&StartTime=2014-06-11T15:00Z
&EndTime=2014-06-11T16:00Z
&<Common request parameter>
```

Sample responses

- XML format

```
<DescribeFilesForSQLServerResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
<TotalRecordCount>1</TotalRecordCount>
<PageNumber>1</PageNumber>
<PageRecordCount>1</PageRecordCount>
<Items>
<SQLServerUploadFile>
<DBName>testdb01</DBName>
<FileName>testdb01_xxxxx.bak</FileName>
<FileSize>1243435</FileSize>
<InternetFtpServer>10.xxx. 239.1</InternetFtpServer>
<InternetPort>3021</InternetPort>
<IntranetFtpServer></IntranetFtpServer>
<UserName>userxxx</UserName>
<Password>pwxxxxx</Password>
<FileStatus>Success</FileStatus>
<CreationTime>2014-06-11T15:02:40Z</CreationTime>
</SQLServerUploadFile>
</Items>
</DescribeFilesForSQLServerResponse>
```

- JSON format

```
{"PageNumber":1,
"TotalRecordCount":1,
"PageRecordCount":1,
"Items":{
 "SQLServerUploadFile":[{
  "DBName":"testdb01",
  "FileName":"testdb01_xxxxx.bak",
  "FileSize ":"1243435",
  "InternetFtpServer":"10.xxx. 239.1",
  "InternetPort":3021,
  "IntranetFtpServer":"",
  "UserName":"userxxx",
  "Password":"pwxxxxx",
  "FileStatus":"Success",
  "CreationTime":"2014-06-11T15:02:40Z"} ]},
"RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.8.3. ImportDatabaseBetweenInstances

Description

You can call this operation to migrate data from one ApsaraDB RDS instance to another. This operation is supported only on dedicated ApsaraDB RDS for MySQL instances.

ApsaraDB RDS for MySQL instances support batch database migration. During migration, the source instance status changes to Migrating and the destination instance status changes to Importing Data.

Database migration is performed between different instances that belong to the same user. Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.

- The database is in the running state.
- The destination instance is not locked by the system.
- The reserved storage space of the destination instance is greater than the space calculated by the following formula: Space occupied by the destination instance - Database space of the destination instance + Database space of the source instance.
- Databases to be migrated exist in both the source and destination instances and are activated.

ApsaraDB RDS for SQL Server instances support batch database migration. During migration, the source instance status changes to Migrating and the destination instance status changes to Importing Data.

Database migration is performed between different instances that belong to the same user. Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The database is in the running state.
- The destination instance is not locked by the system.
- The reserved storage space of the destination instance is greater than the space calculated by the following formula: Space occupied by the destination instance - Database space of the destination instance + Database space of the source instance.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ImportDatabaseBetweenInstances.
DBInstanceId	String	Yes	The ID of the instance.
SourceDBInstanceId	String	Yes	The ID of the source instance. It cannot be the same as that of the destination instance.
DBInfo	String	Yes	The information of the database to be migrated. Specify this parameter in the JSON format. For ApsaraDB RDS for MySQL instances, the parameter value is an array. Example: {"DBNames":["mydb","mydb2"]}. The names of the source and destination databases must be the same. In this example, data is migrated from the mydb and mydb2 databases. These databases must exist in both the source and destination instances.

DBInfo parameters

Parameter	Type	Required	Description
DBNames	List	Yes	The names of databases to be migrated. Example: ["mydb","mydb2"].

Response parameters

Parameter	Type	Description
<Common response parameters>		Common response parameters.
ImportId	Integer	The ID of the destination instance.

Examples

Sample requests

```
https://rds.example.com/?Action=ImportDatabaseBetweenInstances
&DBInstanceId=rds-xxxxx
&SourceDBInstanceId=rds-xxxxx
&{"DBNames":["mydb","mydb2"]}
&<Common request parameters>
```

Sample success responses

- XML format

```
<ImportDatabaseBetweenInstancesResponse>
 <ImportId>2122321</ImportId>
 <RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
 </ImportDatabaseBetweenInstancesResponse>
```

- JSON format

```
{"ImportId":2122321",
 RequestId":"1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC"}
```

8.1.2.8.4. CancelImport

Description

You can call this operation to cancel migration tasks from ApsaraDB RDS for MySQL instances.

Migration tasks from MySQL instances can be canceled.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CancelImport.
DBInstanceId	String	Yes	The ID of the instance.
ImportId	Integer	Yes	The migration task ID.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

Examples

Sample requests

```
https://rds.example.com/?Action=CancelImport
&DBInstanceId=rds-xxxxx
&ImportId=127562
&<Common request parameters>
```

Sample success responses

- XML format

```
<CancelImportResponse>
<RequestId>1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC</RequestId>
</CancelImportResponse>
```

- JSON format

```
{"RequestId": "1E3D5A1E0-67CA-43DA-24BC-EAF2D5A1E4DC" }
```

8.1.2.9. Tag management

8.1.2.9.1. AddTagsToResource

Description

You can call this operation to bind existing or newly created tags to instances. Before you call this operation, ensure that the following requirements are met:

Each tag is composed of a TagKey and a TagValue. The TagKey cannot be blank, but the TagValue can.

- The values of TagKey and TagValue cannot start with aliyun.
- The values of TagKey and TagValue are not case sensitive.
- The maximum length of TagKey is 64 characters and the maximum length of TagValue is 128 characters.
- Each instance can only be bound to a maximum of 10 tags. Each tag bound to the same instance must have a unique TagKey. If tags with duplicate TagKeys are bound to the same instance, the tag bound last overwrites the existing tag.

Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to AddTagsToResource.
RegionId	String	Yes	The region ID of the instance for which a tag is be bound.
DBInstanceId	String	Yes	The ID of the instance for which a tag is be bound. Up to 30 IDs can be entered in a single request. Separate multiple IDs with commas (,) Format: instance1,instance2,instance3.
Tags	JSON string	Yes	The tag pair to be bound. This parameter must include a TagKey, but does not need to include a corresponding TagValue. Up to five tag pairs can be entered in a single request. The TagKey is required, and TagValue is optional. Format: { “key1” :” value1” , “key2” :” ” }.

Response parameters

Parameter	Type	Description
<Common response parameters>	-	Common response parameters.

8.1.2.9.2. DescribeTags

Description

You can call this operation to view the bound tag information of an RDS instance belonging to the current account. This operation must meet the following requirements:

If a specified instance ID is provided, all tags bound to this instance are queried and the other filter criteria are ignored.

- If the TagKey of a key is provided without a TagValue, the results of all tags matching the TagKey criteria are returned.
- If both TagKey and TagValue are provided, only the results that match both parameters are returned.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeTags.
RegionId	String	Yes	The region ID of the instance.

Name	Type	Required	Description
DBInstanceId	String	No	The name of the instance. If this parameter is provided, all the other filter criteria are ignored.
Tags	Json string	No	The tag pair. This parameter must include a TagKey, but does not need to include a corresponding TagValue. The TagKey cannot be blank, but the TagValue can. Format: {"key1":"value1 "}.

Response parameters

Name	Type	Description
<Common response parameters>	-	Common response parameters.
Items	List<TagInfos>	The array that consists of tag data.

TagInfos parameters

Name	Type	Description
TagKey	String	The TagKey.
TagValue	String	The TagValue.
DBInstanceIds	List<DBInstanceId>	The IDs of instances bound to this tag.

DBInstanceIds parameters

Name	Type	Description
DBInstanceId	String	The name of the instance.

8.1.2.9.3. RemoveTagsFromResource

Description

You can call this operation to unbind tags from an instance. This operation must meet the following requirements:

A maximum of 10 tags can be unbound in a single request.

If a tag is unbound from all of its bound instances, the tag itself is automatically deleted.

If the TagKey of a key is provided without a TagValue, all tags matching the TagKey criteria are unbound.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to RemoveTagsFromResource.
RegionId	String	Yes	The region ID of the instance.
DBInstanceId	String	Yes	The name of the instance.
Tags	Json string	Yes	The tag pair to be unbound. This parameter must include a TagKey, but does not need to include a corresponding TagValue. The TagKey cannot be blank, but the TagValue can. Format: {"key1":"value1 "}.

Response parameters

Name	Type	Description
<Common response parameters>	-	Common response parameters.

8.1.2.10. RAM authorization

Use RAM for RDS resource authorization

All RDS instances created through an Apsara Stack tenant account are resources owned by that account. By default, you have full operation permissions on the resources under your account.

Resource Access Management (RAM) allows you to grant RAM users the access and management permissions on RDS resources owned by an Apsara Stack tenant account.

If you do not need to use RAM, ignore this topic.

Resource types in RAM

The only type of RDS resources that can be authorized through RAM is dbinstance. The following table lists the resource description method when the resources are authorized through RAM.

Resource	Resource description in authorization policy
Instance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid acs:rds:$regionid:$accountid:dbinstance/ *acs:rds::: dbinstance/*

The $regionid field must be the ID of a region or an asterisk (*). The $instanceid field must be the ID of an instance or an asterisk (*). Similarly, $account-id is the numerical ID of your Apsara Stack tenant account, which can be replaced by an asterisk (*).

Authorization operations in RAM

In RAM, the following operations can be authorized to an RDS resource.

Operation 1	Operation 2
CreateDBInstance	ModifyDBInstanceSpec
DeleteDBInstance	CreateReadonlyDBInstance
DescribeDBInstances	DescribeDBInstanceAttribute
SwitchDBInstanceNetType	RestartDBInstance
ModifyDBInstanceDescription	ModifySecurityIps
ModifyDBInstanceMaintainTime	UpgradeDBInstanceEngineVersion
PurgeDBInstanceLog	CreateDatabase
DeleteDatabase	DescribeDatabases
ModifyDBDescription	ModifyeParameter
DescribeParameters	DescribeOptimizeAdviceByDBA
DescribeOptimizeAdviceOnMissIndex	ImportDataBaseBetweenInstances
CancelImport	CreateAccount
ResetAccountPassword	GrantAccountPrivilege
RevokeAccountPrivilege	DescribeAccounts
DeleteAccount	ModifyAccountDescription
CreateBackup	DescribeBackups
CreateTempDBInstance	DescribeBackupPolicy
ModifyBackupPolicy	DescribeResourceUsage
DescribeDBInstancePerformance	DescribeSlowLogs
DescribeSlowLogRecords	DescribeErrorLogs
DescribeBinlogFiles	DescribeSQLLogReports
DescribeSQLLogRecords	DescribeOptimizeAdviceOnStorage
DescribeOptimizeAdviceOnMissPK	DescribeOptimizeAdviceOnExcessIndex

> **Note** All operations except DescribeRegions and DescribeParameterTemplates can be authorized.

RAM authentication rules of API operations

When you call API operations to access resources as a RAM user, the RDS backend checks whether the RAM user is granted the required permissions by querying RAM. The permissions to be checked are determined by the resources used by the API operation. The following table lists the authentication rules for each API operation.

Operation	Authentication rule
CreateDBInstance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DeleteDBInstance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDBInstances	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
SwitchDBInstanceNetType	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyDBInstanceDescription	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyDBInstanceMaintainTime	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
PurgeDBInstanceLog	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DeleteDatabase	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyDBDescription	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CancelImport	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ResetAccountPassword	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
RevokeAccountPrivilege	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DeleteAccount	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreateBackup	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreateTempDBInstance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyBackupPolicy	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDBInstancePerformance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSlowLogRecords	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeBinlogFiles	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSQLLogRecords	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeOptimizeAdviceOnMissPK	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid

Operation	Authentication rule
DescribeOptimizeAdviceOnMissIndex	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeParameters	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreatePrepaidDBInstanceForChannel	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyPrepaidDBInstanceSpec	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreatePostpaidDBInstanceForChannel	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyPostpaidDBInstanceSpec	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDBInstanceAttribute	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
RestartDBInstance	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifySecurityIps	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
UpgradeDBInstanceEngineVersion	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreateDatabase	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDatabases	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ImportDataBaseBetweenInstances	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
CreateAccount	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
GrantAccountPrivilege	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeAccounts	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyAccountDescription	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeBackups	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeBackupPolicy	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeResourceUsage	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSlowLogs	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeErrorLogs	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSQLLogReports	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeOptimizeAdviceOnStorage	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeOptimizeAdviceOnExcessIndex	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeOptimizeAdviceByDBA	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid

Operation	Authentication rule
ModifyeParameter	acs:rds:$regionid:$accountid:dbinstance/$dbinstanceid

8.1.2.11. Appendix

8.1.2.11.1. Error codes on the client

8.1.2.11.1.1. Common errors

Error code	Error message	HTTP status code
MissingParameter	The input parameter "parameter name" that is mandatory for processing this request is not supplied.	400
InvalidParameter	The specified parameter "Action or Version" is not valid.	400
InvalidAccessKeyId.NotFound	The Access Key ID provided does not exist in our records.	404
IncompleteSignature	The request signature does not conform to Aliyun standards.	400
IllegalTimestamp	The input parameter "Timestamp" that is mandatory for processing this request is not supplied.	400
InvalidOwnerId	The specified OwnerId is not valid.	400
InvalidOwnerAccount	The specified OwnerAccount is not valid.	400
InvalidOwner	OwnerId and OwnerAccount can't be used at one API access.	400
Throttling	Request was denied due to request throttling.	400
InvalidAction	The specified action is not valid.	403
ActionUnauthorized	The specified action is not available for you	403
UnsupportedHTTPMethod	This http method not supported.	403
UnsupportedParameter	The parameter "<parameter name>" is not supported.	400
Forbidden.InstanceNotFound	The specified Instance is not found.	404
Forbidden.RAM	User not authorized to operate on the specified resource, or this API doesn't support RAM.	403
Forbedden.NotSupportRAM	This action does not support accessed by RAM mode.	403

Error code	Error message	HTTP status code
Forbidden.RiskControl	This operation is forbidden by Aliyun Risk Control system.	403
InsufficientBalance	Your account does not have enough balance.	400
Forbidden.Authentication	This operation is forbidden by Aliyun Realname Authentication system.	403
Invalid<parameter name>.ValueNotSupported	The specified parameter “parameter name” is not valid.	400
Invalid<parameter name>.Malformed	The specified parameter "parameter name n" is not valid.	400
InvalidParameter	The specified parameter " parameter name n " is not valid.	400

8.1.2.11.1.2. Specific errors

Error code	Error message	HTTP status code
InvalidRegionId.NotFound	The DBInstanceId provided does not exist in our records.	404
InvalidSecurityIPList.Duplicate	The Security IP address is not in the available range or occupied.	400
InvalidSecurityIPListLength.Malformed	The quota of security ip exceeds.	400
InvalidEngineVersionInRegion.NotAvailable	The EngineVersion in the Region is not available.	403
InvaildEngineInRegion.NotAvailable	The Engine in the Region is not available.	403
InvaildDBInstanceClassInRegion.NotAvailable	The DBInstanceClass in the Region is not available.	403
OperationDenied	The resource is out of usage.	403
RegionUnauthorized	There is no authority to create instance in the specified region.	403
QuotaExceeded.CreateInstance	The quota of create instance exceeds.	403
InvalidDBInstanceId.NotFound	The DBInstanceId provided does not exist in our records.	404

Error code	Error message	HTTP status code
MissingParameter	The input parameters "DBInstanceClass" and "DBInstanceStorage" all blank or no change.	400
OperationDenied.DBInstanceType	The operation is not permitted due to type of instance.	400
OperationDenied.DBInstanceStorageReduce	The operation is not permitted due to reduce storage.	403
OperationDenied.DBInstanceStatus	The operation is not permitted due to instance status.	403
DependencyViolation	The operation is not permitted due to instance mount read only or guard instance.	403
InvalidConnectionStringPrefix.Duplicate	The connection string is not in the available range or occupied.	400
QuotaExceeded.SwitchTime	The quota of switch time exceed.	400
OperationDenied.LockMode	The operation is not permitted due to lock of instance.	403
InvalidSecurityIps.Duplicate	The quota of security ip exceeds.	400
OperationDenied.CurrentEngineVersion	The operation is not permitted due to specified current version.	400
OperationDenied.ReadOnlyDBInstanceLower	The operation is not permitted due to higher read only instance version.	403
OperationDenied.GuardDBInstanceLower	The operation is not permitted due to higher guard instance version.	403
OperationDenied.MasterDBInstanceState	The operation is not permitted due to status of master instance.	403
QuotaExceeded.DBName	The quota of db exceeds.	400
InvalidDBName.Duplicate	The Security db Name is not in the available range or occupied.	400
InvalidParameter.Keyword	The specified parameter "DBName" is keyword	400
OperationDenied.DBStatus	The operation is not permitted due to status of database.	403
OperationDenied.DBInstanceEngine	The operation is not permitted due to engine of instance.	403

Error code	Error message	HTTP status code
FTPServiceUnavailable	The request has failed due to a temporary failure of the FTP server.	403
QuotaExceeded.Upload	The quota of file exceeds.	403
InvalidFileName.NotCompleted	The specified "FileName" is not completed.	404
InvalidFileName.NotAvailable	The specified "FileName" is not Available.	404
QuotaExceeded.FileSize	The quota of file size exceeds.	403
QuotaExceeded.DBInstanceStorage	The quota of instance storage exceeds.	403
InvalidDBInfo.Malformed	The specified parameter "DBInfo" is not valid or db not exist.	400
OperationDenied.Region	The operation is not permitted due to different region.	403
OperationDenied.Engine	The operation is not permitted due to different engine.	403
OperationDenied.DBInstanceId	The operation is not permitted due to DBInstanceId and SourceDBInstanceId is same.	403
InvalidTaskId.NotFound	The ImportId provided does not exist in our records.	400
OperationDenied.IncorrectTaskStatus	The operation is not permitted due to status of import.	403
InvalidAccountName.keyword	The specified parameter "AccountName" is a keyword.	400
InvalidAccountName.Duplicate	The Security db Name is not in the available range or occupied.	400
QuotaExceeded.AccountName	The quota of account exceeds.	403
OperationDenied.AccountStatus	The operation is not permitted due to status of account.	403
InvalidDBName.NotFound	The DBName provided does not exist in our records.	404
OperationDenied.AccountType	The operation is not permitted due to type of account.	403
OperationDenied.BackupJobExists	The operation is not permitted due to backup job exist.	403

Error code	Error message	HTTP status code
OperationDenied.NoDatabase	The operation is not permitted due to no database.	403
InvalidStartTimeAndEndTime.Malformed	The end time must be greater than the start time	400
OperationDenied.BackupJobExists	The operation is not permitted due to backup job exist.	403
InvalidBackupId.NotFound	The BackupId provided does not exist in our records.	404
OperationDenied.NotFoundBackup	The operation is not permitted due to no backup.	403
OperationDenied.BackupStatus	The operation is not permitted due to type of backup.	403
OperationDenied.BackupMethod	The operation is not permitted method of backup.	403
OperationDenied.TempDBInstanceExists	The operation is not permitted due to temp instance exist.	403
Forbidden.Authentication	The operation is forbidden by Aliyun Realname Authentication System.	403
IncorrectDBInstanceConnType	Current DB instance conn type does not support this operation.	404
IncorrecttVpcId.Mismatch	The specified parameter "VpcId" is not valid.	400
IntranetNetTypeNotExists	Current DB instance net type does not support this operation.	404
InvalidDBInstanceName.NotFound	The DBInstanceId provided does not exist in our records.	403
InvalidConnectionMode.ValueNotSupported	The specified parameter "ConnectionMode" is not valid.	400
InvalidConnectionString.DuplicateSpecified	connection string already exists in the Aliyun RDS.	403
InvalidConnectionString.DuplicateSpecified	connection string or port want to be modified is the same with current net type.	400
InvalidConnectionStringPrefix.Duplicated	Specified connection string already exists in the Aliyun RDS.	403
InvalidCurrentConnectionString.NotFound	Specified current connection string doesn't exist.	400

Error code	Error message	HTTP status code
InvalidDBInstanceId.NotFound	The DBInstanceId provided does not exist in our records.	400
InvalidDBInstanceId.QuotaExceeded	The quota of instance id exceeds.	400
InvalidDBInstanceNetType.NotFound	The Specified DB instance net type is not found.	404
InvalidDBinstanceNetType.ValueNotSupport	The specified parameter "DBinstanceNetType" is not valid.	400
InvalidDBInstanceType.ValueNotSupport	The specified parameter "DBInstanceType" is not valid.	400
InvalidEngineVersion.Malformed	The specified parameter "EngineVersion" is not valid.	400
InvalidInstanceNetworkType.ValueNotSupported	The specified parameter "InstanceNetworkType" is not valid.	400
InvalidParameter	The specified parameter "dbInstanceId" is not valid.	400
InvalidPort.Malformed	Specified port is not valid.	400
InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	400
InvalidPrivateIpAddress.Mismatch	Specified private IP address is not in the CIDR block of virtual switch.	400
InvalidVPCId.NotFound	Specified virtual vpc is not found.	400
InvalidVSwitchId.Mismatch	Specified instance and virtual switch are not in the same zone.	400
InvalidVSwitchId.NotFound	Specified virtual switch is not found in specified VPC.	400
NetTypeExists	Specified net type already existed.	400
NetTypeExists	Specified public net type already existed.	403
OperationDenied.DBInstanceNetType	The operation is not permitted due to net type of instance.	403
OperationDenied.DBInstanceStatus	The operation is not permitted due to status of instance.	403
OperationDenied.DBInstanceType	The operation is not permitted due to type of instance.	403

Error code	Error message	HTTP status code
OperationDenied.LockMode	The operation is not permitted due to lock of instance.	403
OperationDenied.Switch	Specified instance cannot be switched.	400
OperationDenied.Switch	Specified instance cannot be switched to VPC.	403
OperationDenied.SwitchToVPC	Specified instance cannot be switched to VPC.	403
OperationDenied	The resource is out of usage.	403
OperationDenied	The vpc cloudinstanceIp is use, please check params.	406
OperationDenied	The vpc service is error, please check params.	400
PARAMETER_ERROR	The vpc request parameter may not be null.	406
PARAMETER_MUST_NOT_NULL	The parameter must not be null.	406
PublicConnectionExists	PublicConnection exists.	403
bpcIzNoNotEqualsRdsMultIzNo	Specified vpc IzNo not equal rds IzNo.	400
OperationDenied.DBInstanceStatus	The operation is not permitted due to status of instance.	403
OperationDenied.DBInstanceType	The operation is not permitted due to type of instance.	403
OperationDenied.LockMode	The operation is not permitted due to lock of instance.	403
OperationDenied.Switch	Specified instance cannot be switched.	400
OperationDenied.SwitchToVPC	Specified instance cannot be switched to VPC.	403
OperationDenied	The resource is out of usage.	403
OperationDenied	The vpc cloudinstanceIp is use, please check params.	406
OperationDenied	The vpc service is error, please check params.	400
PARAMETER_ERROR	The vpc request parameter may not be null.	406
PARAMETER_MUST_NOT_NULL	The parameter must not be null.	406
PublicConnectionExists	PublicConnection exists.	403

Error code	Error message	HTTP status code
bpcIzNoNotEqualsRdsMultIzNo	Specified vpc IzNo not equal rds IzNo.	400

8.1.2.11.2. Error codes on the server

Error code	Error message	HTTP status code
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503
InternalError	The request processing has failed due to some unknown error, exception or failure.	500

8.1.2.11.3. Instance states

State	Description
Creating	An instance is being created.
Running	An instance is in the running state.
Deleting	An instance is being deleted.
Rebooting	An instance is being restarted.
DBInstanceClassChanging	An instance is being upgraded or downgraded.
TRANSING	Data is being migrated.
EngineVersionUpgrading	Engine version is being upgraded.
TransingToOthers	Data is being migrated to other RDS instances.
GuardDBInstanceCreating	A disaster recovery instance is being created.
Restoring	A backup is being restored.
Importing	Data is being imported.
ImportingFromOthers	Data is being imported from other RDS instances.
DBInstanceNetTypeChanging	The network type is being switched between Intranet and Internet.
GuardSwitching	The instance is undergoing disaster recover failover.
INS_CLONING	The instance is being cloned.

8.1.2.11.4. Performance parameters

ApsaraDB RDS for MySQL

API parameter	Description
MySQL_NetworkTraffic	The average inbound traffic to a MySQL instance per second and average outbound traffic from a MySQL instance per second. Unit: KB.
MySQL_QPSTPS	The average number of SQL statements executed per second and average number of transactions per second.
MySQL_Sessions	The number of active connections and total number of current connections.
MySQL_InnoDBBufferRatio	The read hit rate of the InnoDB buffer pool, utilization of the InnoDB buffer pool, and percentage of dirty data blocks in the InnoDB buffer pool.
MySQL_InnoDBDataReadWritten	The average volume of data that InnoDB reads per second and average volume of data that InnoDB writes per second. Unit: KB.
MySQL_InnoDBLogRequests	The average number of reads from the InnoDB buffer pool per second and average number of writes to the InnoDB buffer pool per second.
MySQL_InnoDBLogWrites	The average number of log write requests per second, average number of physical writes performed on log files per second, and average number of fsync() writes to log files per second.
MySQL_TempDiskTableCreates	The number of temporary tables automatically created in the hard disk when MySQL statements are executed.
MySQL_MyISAMKeyBufferRatio	The average key buffer utilization of MyISAM per second, average key buffer read hit rate of MyISAM per second, and average key buffer write hit rate of MyISAM per second.
MySQL_MyISAMKeyReadWrites	The average number of data reads from the buffer pool by MyISAM per second, average number of data writes to the buffer pool by MyISAM per second, average number of data reads from the hard disk by MyISAM per second, and average number of data writes to the hard disk by MyISAM per second.
MySQL_COMDML	The average number of DELETE statements executed per second, average number of INSERT statements executed per second, average number of INSERT_SELECT statements executed per second, average number of REPLACE statements executed per second, and average number of REPLACE_SELECT statements executed per second, average number of SELECT statements executed per second, and average number of UPDATE statements executed per second.
MySQL_RowDML	The average number of rows read from the InnoDB table per second, average number of rows updated in the InnoDB table per second, average number of rows deleted from the InnoDB table per second, average number of rows inserted into the InnoDB table per second, and average number of physical writes to log files per second.

API parameter	Description
MySQL_MemCpuUsage	The CPU utilization and memory usage of a MySQL instance within the entire operating system.
MySQL_IOPS	The IOPS of a MySQL instance.
MySQL_DetailedSpaceUsage	The disk space occupied by a MySQL instance, including ins_size (total space), data_size (data space), log_size (log space), tmp_size (temporary space), and other_size (system space).
slavestat	The latency of read-only instances.

ApsaraDB RDS for SQL Server

API parameter	Description
SQLServer_Transactions	The average number of transactions per second.
SQLServer_Sessions	The total number of current connections.
SQLServer_BufferHit	The buffer hit rate.
SQLServer_FullScans	The average number of full table scans per second.
SQLServer_SQLCompilations	The number of SQL compilations per second.
SQLServer_CheckPoint	The number of checkpoints written to pages per second.
SQLServer_Logins	The number of logons per second.
SQLServer_LockTimeout	The number of lock timeouts per second.
SQLServer_Deadlock	The number of deadlocks per second.
SQLServer_LockWaits	The number of lock waits per second.
SQLServer_NetworkTraffic	The average inbound/outbound traffic to/from an SQL Server instance per second. Unit: KB.
SQLServer_QPS	The average number of SQL statements executed per second.
SQLServer_InstanceCPUUsage	The CPU utilization of an SQL Server instance within the entire operating system.
SQLServer_IOPS	The IOPS of an SQL server instance.
SQLServer_SpaceUsage	The space usage of an SQL Server instance within the entire operating system.

8.1.2.11.5. Forbidden keywords

ApsaraDB RDS for MySQL

Parameter field	Keyword description
DBName/ AccountName	admin, aurora, replicator, xtrabak, root(MySQL5.5/5.6), mysql, test, eagleye, information_schema, guest, add, analyze, asc, between, blob, call, c hange,check,condition,continue,cross,current_timestamp,database,day_microsecon d,dec,default,desc,distinct,double,e ach,enclosed,exit,fetch,float8,foreign,goto,having,hour_minute,ignore,infile,insensiti ve,int1,int4,interval,iterate,keys,lea ding,like,lines,localtimestamp,longblob,low_priority,mediumint,minute_microsecon d,modifies,no_write_to_binlog,on, optionally,out,precision,purge,read,references,rename,require,revoke,schema,select ,set,spatial,sqlexception,sql_big_re sult,ssl,table,tinyblob,to,true,unique,update,using,utc_timestamp,varchar,when,wit h,xor,all,and,asensitive,bigint,both,c ascade,char,collate,connection,convert,current_date,current_user,databases,day_mi nute,decimal,delayed,describe,dis tinctrow,drop,else,escaped,explain,float,for,from,grant,high_priority,hour_second,in ,inner,insert,int2,int8,into,join,kill,le ave,limit,load,lock,longtext,match,mediumtext,minute_second,natural,null,optimize ,or,outer,primary,raid0,reads,regex p,repeat,restrict,right,schemas,sensitive,show,specific,sqlstate,sql_calc_found_row s,starting,terminated,tinyint,trailing, undo,unlock,usage,utc_date,values,varcharacter,where,write,year_month,alter,as,be fore,binary,by,case,character,colu mn,constraint,create,current_time,cursor,day_hour,day_second,declare,delete,deter ministic,div,dual,elseif,exists,false, float4,force,fulltext,group,hour_microsecond,if,index,inout,int,int3,integer,is,key,lab el,left,linear,localtime,long,loop,me diumblob,middleint,mod,not,numeric,option,order,outfile,procedure,range,real,rele ase,replace,return,rlike,second_mi crosecond,separator,smallint,sql,sqlwarning,sql_small_result,straight_join,then,tinyt ext,trigger,union,unsigned,use,utc_ time,varbinary,varying,while,x509,zerofill,galaxy

ApsaraDB RDS for SQL Server

Parameter field	Keyword description

Parameter field	Keyword description
DBName/ AccountName	root,admin,eagleye,master,aurora,sa,sysadmin,administrator,mssqld,public,securityadmin,serveradmin,setupadmin,pr ocessadmin,diskadmin,dbcreator,bulkadmin,tempdb,msdb,model,distribution,mssqlsystemresource,guest,add,except, percent,all,exec,plan,alter,execute,precision,and,exists,primary,any,exit,print,as,fetch,proc,asc,file,procedure,authorizati on,fillfactor,public,backup,for,raiserror,begin,foreign,read,between,freetext,readtext,break,freetexttable,reconfigure,br owse,from,references,bulk,full,replication,by,function,restore,cascade,goto,restrict,case,grant,return,check,group,rev oke,checkpoint,having,right,close,holdlock,rollback,clustered,identity,rowcount,coalesce,identity_insert,rowguidcol,coll ate,identitycol,rule,column,if,save,commit,in,schema,compute,index,select,constraint,inner,session_user,contains,insert, set,containstable,intersect,setuser,continue,into,shutdown,convert,is,some,create,join,statistics,cross,key,system_user, current,kill,table,current_date,left,textsize,current_time,like,then,current_timestamp,lineno,to,current_user,load,top,cur sor,national,tran,database,nocheck,transaction,dbcc,nonclustered,trigger,deallocate,not,truncate,declare,null,tsequal, default,nullif,union,delete,of,unique,deny,off,update,desc,offsets,updatetext,disk,on,use,distinct,open,user,distributed, opendatasource,values,double,openquery,varying,drop,openrowset,view,dummy,openxml,waitfor,dump,option,when, else,or,where,end,order,while,errlvl,outer,with,escape,over,writetext,galaxy

8.1.2.11.6. Instance types

Instances of different editions, versions, and instance types each perform differently from one another.

ApsaraDB RDS for MySQL instance types

RDS edition	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment

RDS edition	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
High-availability Edition	Dedicated (X8)	5.6, 5.7, and 8.0 mysql.x8.medium.2	2 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	Single-data center deployment and dual-data center deployment
		5.6, 5.7, and 8.0 mysql.x8.large.2	4 cores, 32 GB	5,000	9,000	50–1,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysql.x8.xlarge.2	8 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysql.x8.2xlarge.2	16 cores, 128 GB	20,000	36,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysql.x8.4xlarge.2	32 cores, 256 GB	40,000	72,000	1,000–6,000 GB	
		5.6, 5.7, and 8.0 mysql.x8.8xlarge.2	64 cores, 512 GB	80,000	144,000		
	Dedicated	5.6, 5.7, and 8.0 mysql.x4.large.2	4 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysql.x4.xlarge.2	8 cores, 32 GB	5,000	9,000	500–3,000 GB (in 5 GB increments)	

RDS edition	d (X4) Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
		5.6, 5.7, and 8.0 mysql.x4.2xlarge.2	16 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysql.x4.4xlarge.2	32 cores, 128 GB	20,000	36,000	500–3,000 GB (in 5 GB increments)	
	Dedicated host	5.6, 5.7, and 8.0 rds.mysql.st.v52	90 cores, 720 GB	150,000	140,000	1,000–6,000 GB	
		5.6 and 5.7 rds.mysql.st.h43	60 cores, 470 GB	150,000	120,000		
	Dedicated (with a large number of cores)	5.7 mysql.x4.large.25	4 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	
		5.7 mysql.x4.xlarge.25	8 cores, 32 GB	5,000	9,000	500–3,000 GB (in 5 GB increments)	
		5.7 mysql.x4.2xlarge.25	16 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.7 mysql.x4.4xlarge.25	32 cores, 128 GB	20,000	36,000	1,000–3,000 GB (in 5 GB increments)	

RDS edition	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
Enterprise Edition	Dedicated (with a large memory capacity)	5.7 mysql.x8.medium.25	2 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	Single-data center Enterprise Edition and triple-data center disaster recovery deployment
		5.7 mysql.x8.xlarge.25	4 cores, 32 GB	5,000	9,000	50–1,000 GB (in 5 GB increments)	
		5.7 mysql.x8.xlarge.25	8 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.7 mysql.x8.2xlarge.25	16 cores, 128 GB	20,000	36,000		
		5.7 mysql.x8.4xlarge.25	32 cores, 256 GB	40,000	72,000	1,000–3,000 GB (in 5 GB increments)	
	Dedicated host	5.7 mysql.st.8xlarge.25	60 cores, 470 GB	100,000	120,000	1,000–6,000 GB (in 5 GB increments)	
		5.7 mysql.st.12xlarge.25	90 cores, 720 GB	150,000	140,000	1,000–6,000 GB (in 5 GB increments)	

RDS edition	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
Read-only instance	Dedicated (X8)	5.6, 5.7, and 8.0 mysqlro.x8.medium.1	2 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	Single-data center deployment and dual-data center deployment
		5.6, 5.7, and 8.0 mysqlro.x8.large.1	4 cores, 32 GB	5,000	9,000	50–1,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x8.xlarge.1	8 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x8.2xlarge.1	16 cores, 128 GB	20,000	36,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x8.4xlarge.1	32 cores, 256 GB	40,000	72,000	1,000–6,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x8.8xlarge.1	64 cores, 512 GB	80,000	14,400	1,000–6,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x4.large.1	4 cores, 16 GB	2,500	4,500	50–1,000 GB (in 5 GB increments)	

RDS edition	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
	Dedicated (X4)	5.6, 5.7, and 8.0 mysqlro.x4.xlarge.1	8 cores, 32 GB	5,000	9,000	50–1,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x4.2xlarge.1	16 cores, 64 GB	10,000	18,000	500–3,000 GB (in 5 GB increments)	
		5.6, 5.7, and 8.0 mysqlro.x4.4xlarge.1	32 cores, 128 GB	20,000	36,000	500–3,000 GB (in 5 GB increments)	
	Dedicated host	5.6, 5.7, and 8.0 rds.mysql.st.v52	90 cores, 720 GB	150,000	140,000	1,000–6,000 GB (in 5 GB increments)	
		5.6 and 5.7 rds.mysql.st.h43	60 cores, 470 GB	100,000	120,000		

ApsaraDB RDS for SQL Server instance types

RDS edition	SQL Server version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment

RDS edition	SQL Server version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
	2008 R2	Dedicated	mssql.x8.medium.2	2 cores, 16 GB	2,500	4,500	250 GB	Single-data center deployment and dual-data center deployment. This instance type is not available in new data centers, and does not support V5 servers.
			mssql.x8.large.2	4 cores, 32 GB	5,000	9,000	500 GB	
			mssql.x8.xlarge.2	8 cores, 64 GB	10,000	18,000	1,000 GB	
			mssql.x8.2xlarge.2	16 cores, 128 GB	20,000	36,000	2,000 GB	
		Dedicated host	rds.mssql.st.d13	30 cores, 220 GB	64,000	20,000	2 TB	
			mssql.x4.medium.e2	2 cores, 8 GB				
			mssql.x8.medium.e2	2 cores, 16 GB				
			mssql.x4.large.e2	4 cores, 16 GB				
			mssql.x8.large.e2	4 cores, 32 GB				
			mssql.x4.xlarge.e2	8 cores, 32 GB				
			mssql.x8.xlarge.e2	8 cores, 64 GB				

RDS edition	SQL Server version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
High-availability Edition	2012 EE: 2012_ent_ha 2016 EE: 2016_ent_ha	Dedicated	mssql.x4.2xlarge.e2	16 cores, 64 GB	Unlimited	Dependent on the performance of cloud disks	20–4,000 GB	Single-data center deployment
			mssql.x8.2xlarge.e2	16 cores, 128 GB				
			mssql.x4.3xlarge.e2	24 cores, 96 GB				
			mssql.x4.4xlarge.e2	32 cores, 128 GB				
			mssql.x8.4xlarge.e2	32 cores, 256 GB				
			mssql.x8.7xlarge.e2	56 cores, 480 GB				
			mssql.x4.8xlarge.e2	64 cores, 256 GB				
			mssql.x8.8xlarge.e2	64 cores, 512 GB				
	2012 SE: 2012_std_ha 2016 SE: 2016_std_ha	Dedicated	mssql.x4.medium.s2	2 cores, 8 GB				
			mssql.x8.medium.s2	2 cores, 16 GB				
			mssql.x4.large.s2	4 cores, 16 GB				
			mssql.x8.large.s2	4 cores, 32 GB				
			mssql.x4.xlarge.s2	8 cores, 32 GB				
			mssql.x8.xlarge.s2	8 cores, 64 GB				
			mssql.x4.2xlarge.s2	16 cores, 64 GB				
			mssql.x8.2xlarge.s2	16 cores, 128 GB				

RDS edition	SQL Server version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
			mssql.x4.3xlarge.s2	24 cores, 96 GB				

PolarDB instance types

RDS edition	PolarDB version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
High-availability Edition	11	Dedicated	polardb.x4.small.2	1 core, 4 GB	200	5,000	250 GB	Single-data center deployment and dual-data center deployment
			polardb.x4.medium.2	2 cores, 8 GB	400	10,000		
			polardb.x8.medium.2	2 cores, 16 GB	2,500	15,000		
			polardb.x4.large.2	4 cores, 16 GB	2,500	20,000	250-500 GB (in 5 GB increments)	
			polardb.x8.large.2	4 cores, 32 GB	5,000	30,000		
			polardb.x4.xlarge.2	8 cores, 32 GB	5,000	40,000	500-1,000 GB (in 5 GB increments)	
			polardb.x8.xlarge.2	8 cores, 64 GB	10,000	60,000		
			polardb.x4.2xlarge.2	16 cores, 64 GB	10,000	80,000	1,000-2,000 GB	
			polardb.x8.2xlarge.2	16 cores, 128 GB	12,000	120,000		

RDS edition	PolarDB version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity (in 5 GB increments)	Zone-disaster recovery deployment
			polardb.x4.4xlarge.2	32 cores, 128 GB	12,000	160,000	2,000-3,000 GB (in 5 GB increments)	
			polardb.x8.4xlarge.2	32 cores, 256 GB	12,000	240,000		
		Dedicated host	rds.polardb.st.h43	60 cores, 470 GB	12,000	450,000	6,000 GB	

ApsaraDB RDS for PostgreSQL instance types

RDS edition	PostgreSQL version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
High-availability Edition or read-only instance	9.4/10	Dedicated (with a large memory capacity)	pg.x8.medium.2	2 cores, 16 GB	2,500	4,500	20-6,000 GB (in 5 GB increments)	Single-data center deployment and dual-data center deployment
			pg.x8.large.2	4 cores, 32 GB	5,000	9,000		
			pg.x8.xlarge.2	8 cores, 64 GB	10,000	18,000		
			pg.x8.2xlarge.2	16 cores, 128 GB	12,000	36,000		
		Dedicated (with a large number of cores)	pg.x4.large.2	4 cores, 16 GB	2,500	4,500		
			pg.x4.xlarge.2	8 cores, 32 GB	5,000	9,000		
			pg.x4.2xlarge.2	16 cores, 64 GB	10,000	18,000		
			pg.x4.4xlarge.2	32 cores, 128 GB	12,000	36,000		

RDS edition	PostgreSQL version	Instance family	Instance type	CPU and memory	Maximum connections	Maximum IOPS	Storage capacity	Zone-disaster recovery deployment
		Dedicated host	rds.pg.st.h43	60 cores, 470 GB	4,000	50,000		

9.Cloud Native Distributed Database PolarDB-X

9.1. Developer Guide (1.0)

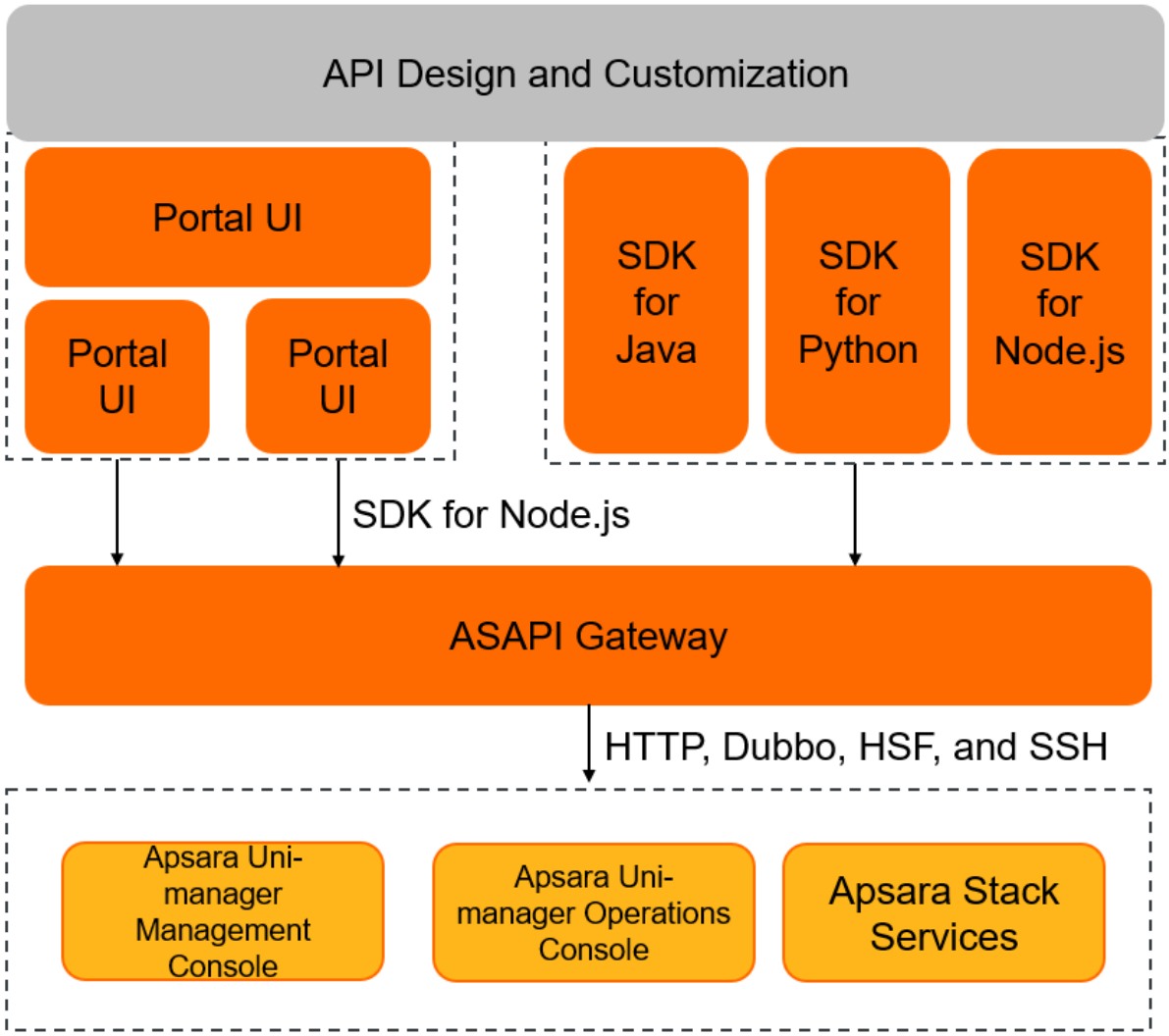
9.1.1. Call SDKs for cloud services by using ASAPI

9.1.1.1. 文档标题缺失，请补全后重新导出

9.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

9.1.1.1.2. Preparations

9.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

9.1.1.1.2.2. View information about API operations

This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

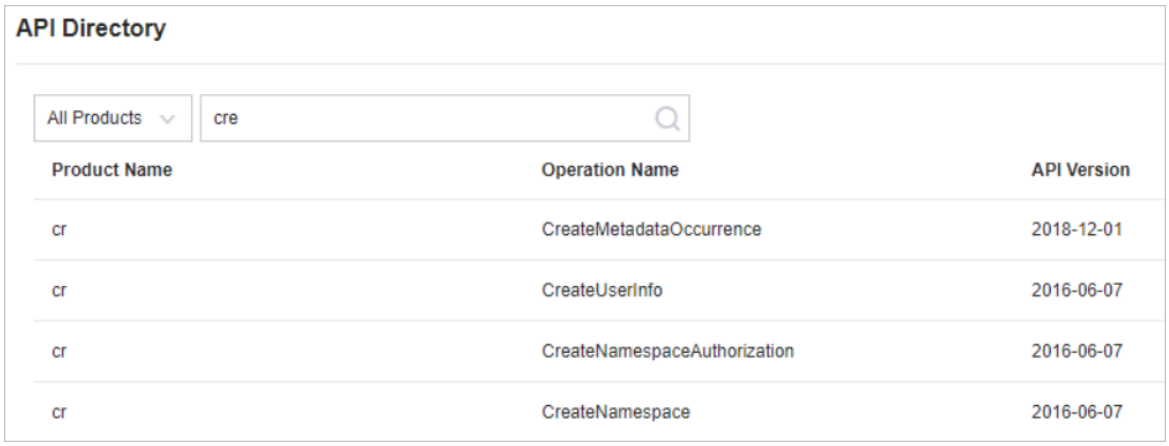
Context

The API operations on the API Directory page are only for reference. For information about how to call

API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



4. Then, you can view the service name, API operation name, and API operation version.

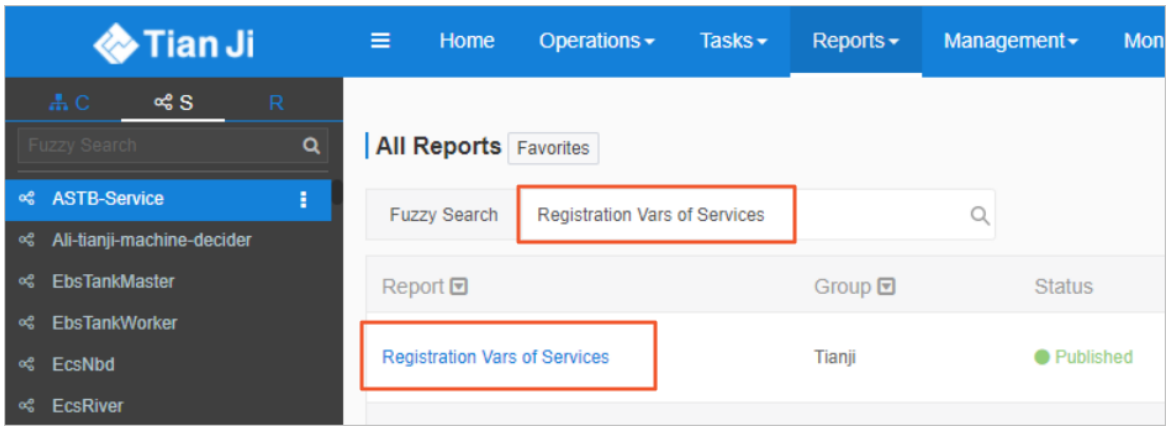
9.1.1.1.2.3. Generate an endpoint for the ASAPI

This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

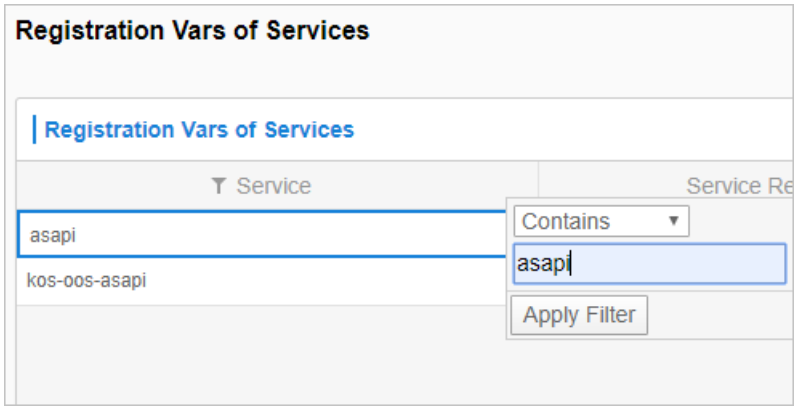
Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.

3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.

   In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

9.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

9.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

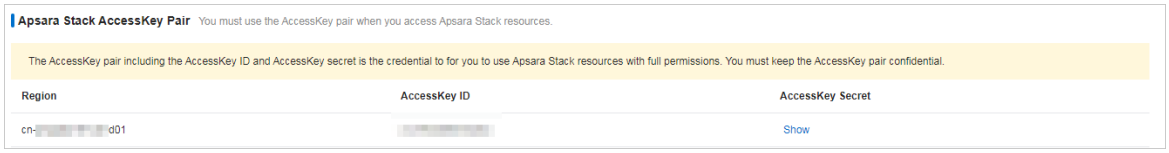
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

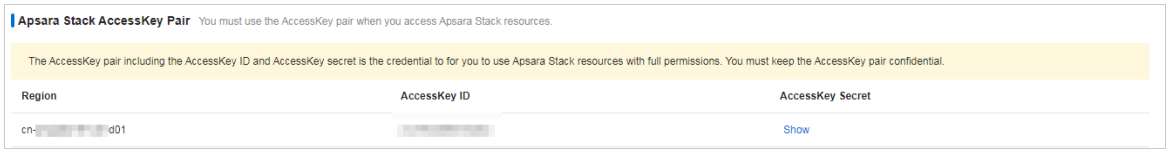
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

9.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



9.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

. .

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

> **Note**
>
> The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

9.1.1.1.4. SDK description

9.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an

AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

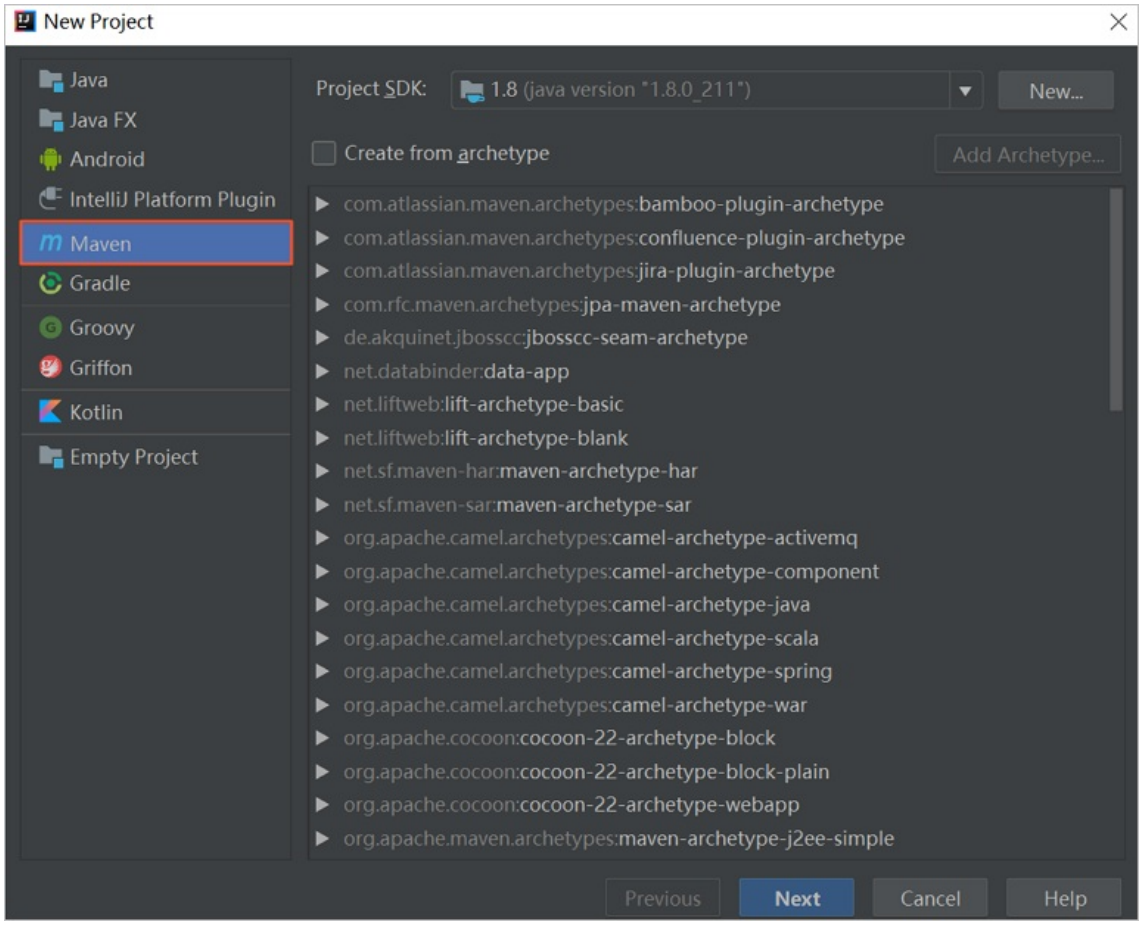
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

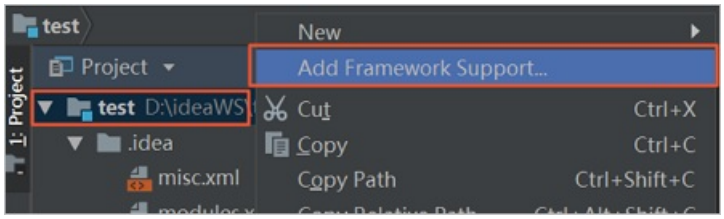
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

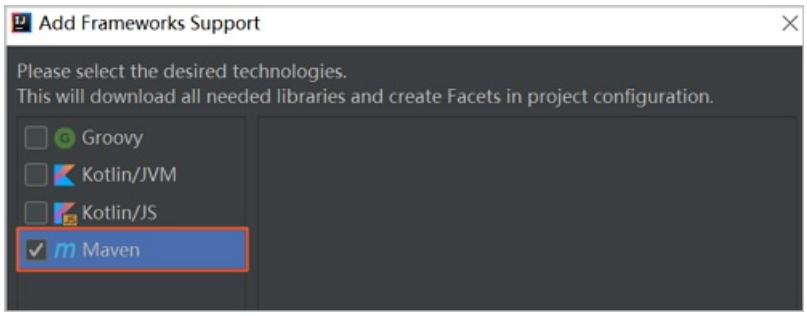
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



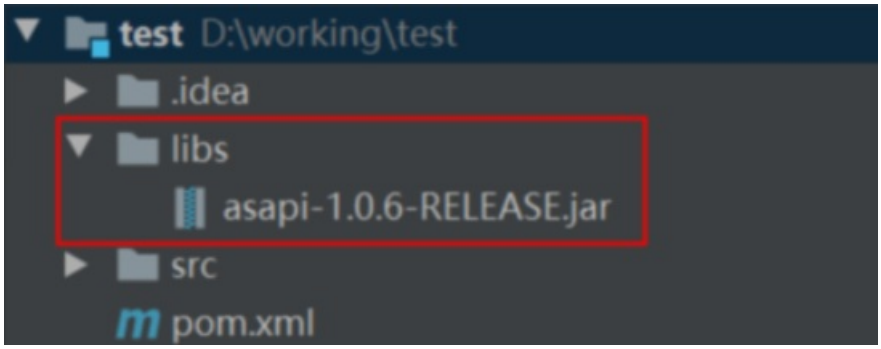
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



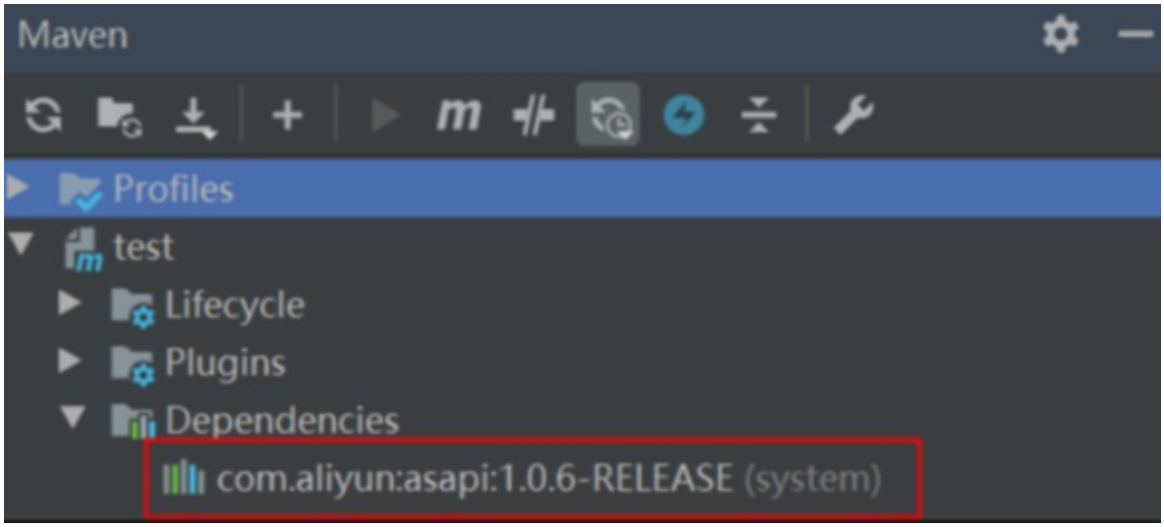
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

Note Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

   If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

9.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

9.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

9.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

9.1.1.1.5. HTTP requests

9.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

9.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

9.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

9.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

9.1.2. API reference

9.1.2.1. API overview

The following tables list API operations available for use in .

Database management

API	Description
ChangeAccountPassword	Resets the password of an account that is used to log on to a specified instance.
CheckDrdsDbName	Checks whether the name of a database is valid.
DescribeRdsPerformanceSummary	Queries the performance metrics of one or more ApsaraDB RDS for MySQL instances that are used by a PolarDB-X instance. These metrics include CPU utilization, input/output operations per second (IOPS), and active sessions.
DescribeRecycleBinStatus	Queries the status of the table recycle bin of a PolarDB-X database.
DescribeRecycleBinTables	Queries the tables that can be recycled for a PolarDB-X database.
DescribeRdsSuperAccountInstances	Queries the privileged accounts of one or more ApsaraDB RDS for MySQL instances that are used by a PolarDB-X instance.
DescribeDrdsSlowSqls	Queries the slow SQL statements that are executed on a database.
DescribeDrdsDbInstance	Queries the details about an ApsaraDB RDS for MySQL instance that is used by a database.
DescribeDrdsDbInstances	Queries the ApsaraDB RDS for MySQL instances that are used by a database.
DescribeDrdsDbRdsNameList	Queries the IDs of the storage instances for a database.
DescribeDrdsDbRdsRelationInfo	Queries the structure information about the storage instances for a database.
DescribeDrdsDbTasks	Queries incomplete tasks for a database.
DescribeDrdsInstanceDbMonitor	Queries the performance monitoring data of a database.
SubmitCleanTask	Submits a cleanup task for the smooth scale-out of a PolarDB-X database.
SubmitSmoothExpandPreCheckTask	Submits a precheck task for the smooth scale-out of a PolarDB-X database.
ValidateShardTask	Checks whether a sharding task is valid.
SubmitSmoothExpandPreCheck	Submits a precheck task for the smooth scale-out of a PolarDB-X database.

API	Description
StartRestore	Starts a backup-based restoration task.
RefreshDrdsAtomUrl	Refreshes the connection between a instance and an ApsaraDB RDS for MySQL instance whose network type is changed. This operation can ensure connectivity.
ModifyRdsReadWeight	Modifies the read/write weights of one or more ApsaraDB RDS for MySQL instances for a PolarDB-X database.
RemoveDrdsDbFailedRecord	Deletes the failure records of creating a database.
RemoveDrdsDb	Removes a database from a instance.
RemoveBackupsSet	Deletes a backup set.
RemoveRecycleBinTable	Clears the tables in the recycle bin of a PolarDB-X database.
DescribeBackMenu	Checks whether an instance supports backup and restoration.
DescribeDrdsSqlAuditStatus	Queries the SQL audit details for a instance.
DescribeTables	Queries the details about the tables in a PolarDB-X database.
DescribeBackupTimes	Queries the point in time to which a PolarDB-X instance can be restored.
DescribeGlobalBroadcastType	Checks whether the tables in a PolarDB-X database are broadcast tables.
DescribeHotDbList	Queries the available databases for a hot-spot scale-out operation.
DescribeExpandLogicTableInfoList	Queries the shard key of a PolarDB-X database.
DescribeTableListByType	Queries the tables of a PolarDB-X database based on types.
DisableSqlAudit	Disables the SQL audit feature for a PolarDB-X database.
DescribeShardTaskList	Queries the sharding tasks for a PolarDB-X database.
DescribeTable	Queries the table schema of a PolarDB-X database.
DescribeInstDbLogInfo	Queries the time range of historical SQL data that can be imported to a PolarDB-X database.

API	Description
ResetDrdsToRdsConnections	Resets the number of connections from a instance to ApsaraDB RDS for MySQL instances.
DatalinkReplicationPrecheck	Performs a precheck for a sharding task on a PolarDB-X database.
DescribeRDSPerformance	Queries the performance data of a specified ApsaraDB RDS for MySQL instance that is used by a PolarDB-X instance.
CreateShardTask	Creates a sharding task for a PolarDB-X database.
DescribeShardTaskInfo	Queries the details about a sharding task for a specified PolarDB-X database.
DescribeBackupDbs	Queries the databases that can be restored for a PolarDB-X instance.
DeleteShardTasks	Deletes sharding tasks from a PolarDB-X database.
ModifyDrdsIpWhiteList	Modifies the IP address whitelist of a PolarDB-X database.
DescribeSqlFlashbakTask	Queries the flashback tasks for a PolarDB-X database.
CheckExpandStatus	Checks whether scale-out operations such as smooth scale-outs can be performed on a database.
CheckSqlAuditEnableStatus	Checks whether the SQL audit feature is enabled for a logical database.
SetupBroadcastTables	Configures broadcast tables for a PolarDB-X database.
SetupRecycleBinStatus	Enables the table recycle bin for a PolarDB-X database.
SetupTable	Enables the full-table scan feature for a PolarDB-X database.
ModifyAccountPrivilege	Modifies the permissions of a specified account for a PolarDB-X instance.
DescribeDrdsShardingDbs	Queries the details about a horizontally split database.
CreateDrdsDB	Creates a database.
DescribeDbInstances	Queries the storage instances of a PolarDB-X instance.

API	Description
DescribeDrdsDB	Queries the details about the databases for a PolarDB-X instance.
DescribeDbInstanceDbs	Queries the databases on a storage instance that is used by a specified PolarDB-X instance.
SubmitSmoothExpandTask	Submits a smooth scale-out task for a PolarDB-X database.
SubmitSwitchTask	Submits a switchover task for the smooth scale-out of a PolarDB-X database.

Instance management

API	Description
DescribeDrdsDBs	Queries the details about the databases that are created in a instance.
DescribeDrdsInstance	Queries the details about a instance.
DescribeDrdsInstanceLevelTasks	Queries incomplete tasks for a instance.
DescribeDrdsInstanceMonitor	Queries the monitoring data of a instance.
DescribeDrdsInstances	Queries the instances that meet specific criteria in a region.
DescribeDrdsInstanceVersion	Queries the version information for a instance.
DescribeDrdsParams	Queries the parameters of a instance or database.
RollbackInstanceVersion	Rolls back the version of a instance.
UpgradeInstanceVersion	Upgrades the version of the instance.
SubmitRollbackTask	Submits a smooth scale-out rollback task for a PolarDB-X database.
SwitchGlobalBroadcastType	Switches the broadcast tables in a PolarDB-X database from the multi-write mode to the asynchronous link mode.
SubmitSqlFlashbackTask	Submits an SQL flashback task for a PolarDB-X instance.
RemoveDrdsInstance	Releases a instance.
DescribeDrdsTasks	Queries the change tasks for an instance.
RestartDrdsInstance	Restarts an instance.

API	Description
DescribePreCheckResult	Queries the precheck results of a PolarDB-X instance.
DescribeStorageInstanceSubDbInfo	Queries the details about a storage instance that is used by a specified PolarDB-X database.
RemoveInstanceAccount	Deletes a management account of a PolarDB-X instance.
DescribeInstanceMenuSwitch	Queries the switch configuration of a PolarDB-X instance.
DescribeInstanceAccounts	Queries the account information about a PolarDB-X instance.
DescribeInstDbSlsInfo	Queries the names of the Log Service project and the Logstore used by the SQL audit feature.
SetBackupPolicy	Configures the backup policy for a PolarDB-X instance.
EnableSqlAudit	Enables the SQL audit feature for a PolarDB-X database.
EnableSqlFlashbackMatchSwitch	Enables the SQL flashback matching feature for a PolarDB-X database. After this feature is enabled, the query information is added to the binary logs of the ApsaraDB RDS for MySQL instances that are used by the database. This helps restore data in a precise manner.
SetupDrdsParams	Configures parameters for a instance or database.
FlashbackRecycleBinTable	Restores a logical table in the recycle bin of a PolarDB-X database.
ModifyAccountDescription	Modifies the description of an account for a PolarDB-X instance.
ModifyDrdsInstanceDescription	Modifies the description of a PolarDB-X instance.
CreateInstanceAccount	Creates an account for a instance.

9.1.2.2. Database management

9.1.2.2.1. ChangeAccountPassword

Resets the password of a database.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	test	The name of the account.
Action	String	Yes	ChangeAccountPassword	The operation that you want to perform. Set the value to ChangeAccountPassword.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
Password	String	Yes	Test123	The new password.
AccessKeyId	String	No	sdfgssdsf	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ChangeAccountPassword
&AccountName=test
&DrdsInstanceId=drdsxxxxxxxxxx
&Password=Test123
&<Common request parameters>
```

Sample success responses

XML format

```
<ChangeAccountPasswordResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
</ChangeAccountPasswordResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "Success":true
}
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.2. CheckDrdsDbName

Checks whether the name of a database is valid.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CheckDrdsDbName	The operation that you want to perform. Set the value to CheckDrdsDbName.
DbName	String	Yes	testdb	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Result	Boolean	true	Indicates whether the name of the PolarDB-X database is valid. Valid values: • true: valid • false: invalid

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CheckDrdsDbName
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<CheckDrdsDbNameResponse>
      <Result>true</Result>
      <RequestId>CF38538C-68BD-4278-B58F-EDE96FA8A5CE</RequestId>
      <Success>true</Success>
</CheckDrdsDbNameResponse>
```

JSON format

```
{
    "Result":true,
    "RequestId":"CF38538C-68BD-4278-B58F-EDE96FA8A5CE",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.3. CheckExpandStatus

Verifies whether scale-out operations such as smooth scale-out can be performed on a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CheckExpandStatus	The operation that you want to perform. Set the value to CheckExpandStatus.

Parameter	Type	Required	Example	Description
DbName	String	Yes	testdb	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The verification result.
IsActive	Boolean	true	Indicates whether scale-out is supported. The value true indicates that scale-out is supported. The value false indicates that scale-out is not supported.
Msg	String	success	The additional information.
RequestId	String	drds_sample_request_id	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CheckExpandStatus
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<CheckExpandStatus>
      <Data>
            <IsActive>true</IsActive>
            <Msg></Msg>
      </Data>
      <RequestId>7CDBA7D5-8D62-4D24-9C65-510D621278DB</RequestId>
      <Success>true</Success>
</CheckExpandStatus>
```

JSON format

```
{
    "Data":{
        "IsActive":true,
        "Msg":""
    },
    "RequestId":"7CDBA7D5-8D62-4D24-9C65-510D621278DB",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.4. CheckSqlAuditEnableStatus

Verifies whether SQL audit is enabled for a logical database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CheckSqlAuditEnableStatus	The operation that you want to perform. Set the value to CheckSqlAuditEnableStatus.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	drds_sample_request_id	The ID of the request.
Status	String	enabled	Indicates whether SQL audit was enabled for the logical database. Valid values: enabled and disabled.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CheckSqlAuditEnableStatus
&DbName=drds_db
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<CheckSqlAuditEnableStatus>
      <Status>"disabled"</Status>
      <RequestId>FF13E47D-4E38-4A5A-BA68-32A554E6FE10</RequestId>
      <Success>true</Success>
</CheckSqlAuditEnableStatus>
```

JSON format

```
{
    "Status":"\"disabled\"",
    "RequestId":"FF13E47D-4E38-4A5A-BA68-32A554E6FE10",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.5. CreateDrdsDB

Creates a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDrdsDB	The operation that you want to perform. Set the value to CreateDrdsDB.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
DbInstType	String	No	RDS	The type of the storage instance. Only ApsaraDB RDS for MySQL instances are supported.
DbInstanceIsCreating	Boolean	No	false	Indicates whether ApsaraDB RDS for MySQL instances involved in database creation are being created.
DbName	String	No	drds_db	The name of the PolarDB-X database.
Encode	String	No	drds_sample_encode	The database encoding.
Password	String	No	drds_sample_password	The logon password of the PolarDB-X database.
RdsInstance.N	RepeatList	No	["rds_id1", "rds_id2"]	This parameter is required only for horizontal partitioning. It is a JSON array string.
RdsSuperAccount.N.AccountName	String	No	rdsuser	The name of the ApsaraDB RDS for MySQL privileged account.
RdsSuperAccount.N.DbInstanceId	String	No	rds_id	The ID of the ApsaraDB RDS for MySQL instance.
RdsSuperAccount.N.Password	String	No	rds_password	The password of the ApsaraDB RDS for MySQL privileged account.
Type	String	No	HORIZONTAL	The partition mode of the database. Set the value to HORIZONTAL.

Response parameters

Parameter	Type	Example	Description
RequestId	String	drds_sample_request_id	The ID of the request.
Success	Boolean	true	Indicates whether the PolarDB-X database was created.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateDrdsDB
&DrdsInstanceId=drdsxxxxxxxxxxx
&DbName=drds_db
&Encode=utf8mb4
&Password=drds_sample_password
&RdsInstance=["rds_id1", "rds_id2"]
&Type=HORIZONTAL
&DbInstType=RDS
&DbInstanceIsCreating=false
&<Common request parameters>
```

Sample success responses

XML format

```
<CreateDrdsDB>
      <RequestId>FF13E47D-4E38-4A5A-BA68-32A554E610EF</RequestId>
      <Success>true</Success>
</CreateDrdsDB>
```

JSON format

```
{
    "RequestId":"FF13E47D-4E38-4A5A-BA68-32A554E610EF",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.6. CreateShardTask

Creates a partitioning task for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateShardTask	The operation that you want to perform. Set the value to CreateShardTask.
DbName	String	Yes	test_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
SourceTableName	String	Yes	student_tb1	The name of the source table.
TargetTableName	String	Yes	student_tb2	The name of the destination table.
TaskType	String	Yes	SINGLE_TO_SHARD	The type of the task. Valid values: SHARD_TO_SINGLE, SINGLE_TO_SHARD, and SHARD_TO_SHARD.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether the partitioning task was created.
RequestId	String	F8997D95-94AD-416A-AE70-E24D087045ED	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateShardTask
&DbName=test_db
&DrdsInstanceId=drdsxxxxxxxxxxx
&SourceTableName=student_tb1
&TargetTableName=student_tb2
&TaskType=SINGLE_TO_SHARD
&<Common request parameters>
```

Sample success responses

XML format

```
<CreateShardTaskResponse>
      <Data>true</Data>
      <RequestId>F8997D95-94AD-416A-AE70-E24D087045ED</RequestId>
      <Success>true</Success>
</CreateShardTaskResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"F8997D95-94AD-416A-AE70-E24D087045ED",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.7. DatalinkReplicationPrecheck

Prechecks a partitioning task of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DatalinkReplicationPrecheck	The operation that you want to perform. Set the value to DatalinkReplicationPrecheck.
DbName	String	Yes	test_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
DstTableName	String	Yes	student_1	The name of the destination table.
SrcTableName	String	Yes	student_2	The name of the source table.
AccessKeyId	String	No	XXXXXX	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	Long	20190886	The ID of the precheck task.
RequestId	String	F8997D95-94AD-416A-AE70-E24D087045ED	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DatalinkReplicationPrecheck
&DbName=test_db
&DrdsInstanceId=drdsxxxxxxxx
&DstTableName=student_1
&SrcTableName=student_2
&<Common request parameters>
```

Sample success responses

JSON format

```
<DatalinkReplicationPrecheckResponse>
      <Data>20190886</Data>
      <RequestId>F8997D95-94AD-416A-AE70-E24D087045ED</RequestId>
      <Success>true</Success>
</DatalinkReplicationPrecheckResponse>
```

JSON format

```
{
    "Data":20190886,
    "RequestId":"F8997D95-94AD-416A-AE70-E24D087045ED",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.8. DeleteShardTasks

Deletes partitioning tasks from a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteShardTasks	The operation that you want to perform. Set the value to DeleteShardTasks.
DbName	String	Yes	test_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.
TableName.N.SourceTableName	String	No	student_1	The name of the source table.
TableName.N.TargetTableName	String	No	student_2	The name of the destination table.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether partitioning tasks were deleted.
RequestId	String	F8997D95-94AD-416A-AE70-E24D087045ED	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteShardTasks
&DbName=test_db
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DeleteShardTasksResponse>
      <Data>true</Data>
      <RequestId>F8997D95-94AD-416A-AE70-E24D087045ED</RequestId>
      <Success>true</Success>
</DeleteShardTasksResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"F8997D95-94AD-416A-AE70-E24D087045ED",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.9. DescribeBackMenu

Queries whether a PolarDB-X instance supports backup and recovery.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackMenu	The operation that you want to perform. Set the value to DescribeBackMenu.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	xxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
List	-	-	The list of supported items.
list	-	-	The details about a supported item.
MenuName	String	phy	• The mode of the backup. Valid values: logic: logical backup • phy: physical backup
Support	Boolean	true	Indicates whether the PolarDB-X instance supports backup and recovery.
RequestId	String	60C21BE4-EDFE-454C-95ED-3A5C7493D74A	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBackMenu
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeBackMenuResponse>
      <List>
            <MenuName>phy</MenuName>
            <Support>true</Support>
      </List>
      <List>
            <MenuName>logic</MenuName>
            <Support>true</Support>
      </List>
      <RequestId>60C21BE4-EDFE-454C-95ED-3A5C7493D74A</RequestId>
      <Success>true</Success>
</DescribeBackMenuResponse>
```

JSON format

```
{
    "RequestId":"60C21BE4-EDFE-454C-95ED-3A5C7493D74A",
    "Success":true,
    "List":[
        {
            "MenuName":"phy",
            "Support":true
        },
        {
            "MenuName":"logic",
            "Support":true
        }
    ]
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.10. DescribeBackupDbs

Queries the databases that can be restored for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackupDbs	The operation that you want to perform. Set the value to DescribeBackupDbs.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	xxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
BackupId	String	No	201908367	Query by backup set.
PreferredRestoreTime	String	No	1568632541236	Query by restoration time.

Response parameters

Parameter	Type	Example	Description
DbNames	-	["db1","db2"]	The list of returned databases.
dbName	-	-	The details about a database.
RequestId	String	9EF10719-C34F-4E64-8260-D29C1A78B5DD	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBackupDbs
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeBackupDbsResponse>
      <DbNames></DbNames>
      <RequestId>9EF10719-C34F-4E64-8260-D29C1A78B5DD</RequestId>
      <Success>true</Success>
</DescribeBackupDbsResponse>
```

JSON format

```
{
    "RequestId":"9EF10719-C34F-4E64-8260-D29C1A78B5DD",
    "DbNames":{
        "dbName":[]
    },
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.11. DescribeBackupTimes

Queries the point in time to which a PolarDB-X instance can be restored.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackupTimes	The operation that you want to perform. Set the value to DescribeBackupTimes.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	xxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4780A19F-5ECB-4C56-AD20-966A3FF99772	The ID of the request.
RestoreTime	-	-	The point in time to which the PolarDB-X instance can be restored.
EndTime	String	1568636922671	The timestamp that specifies the end of the time range to query.

Parameter	Type	Example	Description
StartTime	String	1568632853000	The timestamp that specifies the beginning of the time range to query.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBackupTimes
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeBackupTimesResponse>
      <RequestId>4780A19F-5ECB-4C56-AD20-966A3FF99772</RequestId>
      <Success>true</Success>
      <RestoreTime>
            <EndTime>1568636922671</EndTime>
            <StartTime>1568632853000</StartTime>
      </RestoreTime>
</DescribeBackupTimesResponse>
```

JSON format

```
{
    "RestoreTime":{
        "EndTime":"1568636922671",
        "StartTime":"1568632853000"
    },
    "RequestId":"4780A19F-5ECB-4C56-AD20-966A3FF99772",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.12. DescribeBroadcastTables

Queries the broadcast tables in a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBroadcastTables	The operation that you want to perform. Set the value to DescribeBroadcastTables.
DbName	String	Yes	test_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
Query	String	Yes	tb1	The query content.
CurrentPage	Integer	No	1	The page number of the current page.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
IsShard	Boolean	true	Indicates whether the table was partitioned.
List	-	-	The list of broadcast tables.
Broadcast	Boolean	true	Indicates whether the table is a broadcast table.
BroadcastType	String	1	The type of the broadcast table. Valid values: • 1: multi-write mode • 2: synchronous link mode

Parameter	Type	Example	Description
DbInstType	Integer	0	The type of the storage instance. The value 0 indicates RDS.
IsShard	Boolean	false	Indicates whether the table was partitioned.
Status	Integer	1	The status of the broadcast table. Valid values: • 1: activated • 2: activating • 3: activation exception
Table	String	nation	The name of the table.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	40	The number of entries returned per page.
RequestId	String	86E420ED-43F2-4788-A58C-9218491FFB09	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Total	Integer	2	The total number of entries.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBroadcastTables
&DbName=test_db
&DrdsInstanceId=drdsxxxxxxxxxx
&Query=tb1
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeBroadcastTablesResponse>
      <PageSize>40</PageSize>
      <RequestId>86E420ED-43F2-4788-A58C-9218491FFB09</RequestId>
      <PageNumber>1</PageNumber>
      <Total>2</Total>
      <List>
            <Status>1</Status>
            <DbInstType>0</DbInstType>
            <IsShard>false</IsShard>
            <Table>nation</Table>
            <Broadcast>true</Broadcast>
            <BroadcastType>1</BroadcastType>
      </List>
      <List>
            <Status>1</Status>
            <DbInstType>0</DbInstType>
            <IsShard>false</IsShard>
            <Table>region</Table>
            <Broadcast>true</Broadcast>
            <BroadcastType>1</BroadcastType>
      </List>
      <Success>true</Success>
</DescribeBroadcastTablesResponse>
```

JSON format

```
{
    "PageNumber":1,
    "PageSize":40,
    "RequestId":"86E420ED-43F2-4788-A58C-9218491FFB09",
    "Success":true,
    "List":[
        {
            "Status":1,
            "IsShard":false,
            "BroadcastType":1,
            "Broadcast":true,
            "Table":"nation",
            "DbInstType":0
        },
        {
            "Status":1,
            "IsShard":false,
            "BroadcastType":1,
            "Broadcast":true,
            "Table":"region",
            "DbInstType":0
        }
    ],
    "Total":2
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.13. DescribeDbInstanceDbs

Queries the databases on a storage instance of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDbInstanceDbs	The operation that you want to perform. Set the value to DescribeDbInstanceDbs.
DbInstanceId	String	Yes	pc-bpxxxxxxxxxxxxxx	The ID of the storage instance.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	xxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud. For more information, see Common parameters.
AccountName	String	No	supper_account	The username of the privileged account. Leave this parameter blank if no privileged account exists.
DbInstType	String	No	RDS	The type of the storage instance. Valid values: POLARDB and RDS.
Password	String	No	Pass_123456	The password of the privileged account. Leave this parameter blank if no privileged account exists.

Response parameters

Parameter	Type	Example	Description
Databases	-	-	The list of returned databases.
Database	-	-	The details about a database.
DbName	String	db_newsudbv	The name of the database.
Description	String	Created by , do NOT change password	The description of the database.
Status	Integer	1	The status of the database. • 0: creating • 1: available • 3: deleting
RequestId	String	E9F3D991-08DE-4B74-BE0E-06B80958F5DC	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Total	String	1	The total number of databases.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDbInstanceDbs
&DbInstanceId=pc-bpxxxxxxxxxxxxxx
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDbInstanceDbsResponse>
      <Databases>
            <Database>
                  <Status>1</Status>
                  <Description>Created by , do NOT change password</Description>
                  <DbName>db_newsudbv</DbName>
            </Database>
      </Databases>
      <total>1</total>
      <RequestId>E9F3D991-08DE-4B74-BE0E-06B80958F5DC</RequestId>
      <Success>true</Success>
</DescribeDbInstanceDbsResponse>
```

JSON format

```
{
    "total":1,
    "Databases":{
        "Database":[
            {
                "Status":1,
                "Description":"Created by , do NOT change password",
                "DbName":"db_newsudbv"
            }
        ]
    },
    "RequestId":"E9F3D991-08DE-4B74-BE0E-06B80958F5DC",
    "Success":true
}
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.14. DescribeDbInstances

Queries the storage instances, namely, ApsaraDB RDS for MySQL instances of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDbInstances	The operation that you want to perform. Set the value to DescribeDbInstances.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	Yes	testxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
DbInstType	String	No	RDS	The type of the storage instance. Set the value to RDS.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.
Search	String	No	pc-bp1xxxxxxxxxxx	Query by storage instance ID.

Response parameters

Parameter	Type	Example	Description
Items	-	-	The list of returned storage instances.
DBInstance	-	-	The details about a storage instance.
DBInstanceDescription	String	pc-bp1xxxxxxxxxxxxx	The description of the storage instance.
DBInstanceId	String	pc-bp1xxxxxxxxxxxxx	The ID of the storage instance.

Parameter	Type	Example	Description
DBInstanceStatus	Integer	1	The status of the storage instance. Valid values: • 0: creating • 1: running • 3: deleting • 5: restarting • 6: changing specifications • 7: recovering • 8: switching between the classic network and VPC network
DBInstanceType	String	RDS	The type of the storage instance. Example: RDS.
Engine	String	mysql	The engine that the storage instance runs.
EngineVersion	String	5.6	The version of the engine that the storage instance runs.
InstanceNetworkType	String	CLASSIC	The network type of the storage instance. Valid values: • CLASSIC: classic network • VPC: Virtual Private Cloud (VPC) network **Note** Apsara Stack does not support VPC networks.
ReadOnlyDBInstanceId	-	[]	The list of read-only storage instances.
ReadOnlyDBInstanceId	-	-	The details about a read-only storage instance.
RegionId	String	cn-hangzhou	The ID of the region where the storage instance is located.

Parameter	Type	Example	Description
ZoneId	String	cn-hangzhou-a	The ID of the zone where the storage instance is located.
RequestId	String	05670C01-093E-4DF4-99FA-0C63FF60250D	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDbInstances
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDbInstancesResponse>
      <RequestId>05670C01-093E-4DF4-99FA-0C63FF60250D</RequestId>
      <Items>
            <DBInstance>
                  <EngineVersion>5.6</EngineVersion>
                  <DBInstanceStatus>1</DBInstanceStatus>
                  <DBInstanceId>pc-bp1xxxxxxxxxxxxxx</DBInstanceId>
                  <ReadOnlyDBInstanceId></ReadOnlyDBInstanceId>
                  <DBInstanceType>Primary</DBInstanceType>
                  <RegionId>cn-hangzhou</RegionId>
                  <DBInstanceDescription>pc-bp1xxxxxxxxxxxxx</DBInstanceDescription>
                  <Engine>POLARDB</Engine>
                  <InstanceNetworkType>VPC</InstanceNetworkType>
            </DBInstance>
      </Items>
</DescribeDbInstancesResponse>
```

JSON format

```
{
    "Items":{
        "DBInstance":[
            {
                "RegionId":"cn-hangzhou",
                "DBInstanceType":"Primary",
                "DBInstanceId":"pc-bp1xxxxxxxxxxxxx",
                "InstanceNetworkType":"VPC",
                "DBInstanceDescription":"pc-bp1xxxxxxxxxxxxx",
                "EngineVersion":"5.6",
                "DBInstanceStatus":1,
                "Engine":"POLARDB",
                "ReadOnlyDBInstanceId":{
                    "ReadOnlyDBInstanceId":[]
                }
            }
        ]
    },
    "RequestId":"05670C01-093E-4DF4-99FA-0C63FF60250D"
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.15. DescribeDrdsDB

Queries the details about a database on a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDB	The operation that you want to perform. Set the value to DescribeDrdsDB.
DbName	String	Yes	db_test	The name of the PolarDB-X database.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of PolarDB-X instance.
AccessKeyId	String	No	xxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The details about the database.
CreateTime	String	1568949855000	The timestamp when the database was created.
DbInstType	String	RDS	The type of the storage instance. Example: RDS.
DbName	String	db_0	The name of the database.
InstRole	String	MASTER	The type of the storage instance. Valid values: • MASTER: primary instance. • SLAVE: read-only instance.
Mode	String	HORIZONTAL	The partition mode of the database. Set the value to HORIZONTAL.
Schema	String	db_0_xxxxxxxxxxxxwpyh	The name of a physical database after partitioning.
Status	String	NORMAL	The status of the database. Valid values: • TO_BE_INIT: creating • NORMAL: running
RequestId	String	05203D07-8447-48D0-BED5-2F00BFD40630	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDB
&DbName=db_test
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDBResponse>
      <RequestId>45203D07-8447-48D0-BED5-2F00BFD40630</RequestId>
      <Data>
            <Status>NORMAL</Status>
            <DbInstType>RDS</DbInstType>
            <InstRole>MASTER</InstRole>
            <Schema>db_0_xxxxxxxxxxxxwpyh</Schema>
            <CreateTime>1568949855000</CreateTime>
            <Mode>HORIZONTAL</Mode>
            <DbName>db_0</DbName>
      </Data>
      <Success>true</Success>
</DescribeDrdsDBResponse>
```

JSON format

```
{
    "Data":{
        "Status":"NORMAL",
        "DbName":"db_0",
        "CreateTime":1568949855000,
        "Schema":"db_0_xxxxxxxxxxxxwpyh",
        "DbInstType":"RDS",
        "Mode":"HORIZONTAL",
        "InstRole":"MASTER"
    },
    "RequestId":"45203D07-8447-48D0-BED5-2F00BFD40630",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.16. DescribeDrdsDbInstance

Queries the details about an ApsaraDB RDS for MySQL instance of a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDbInstance	The operation that you want to perform. Set this parameter to DescribeDrdsDbInstance.
DbInstanceId	String	Yes	rm-bpxxxxxxxxxxx	The ID of ApsaraDB RDS for MySQL instance of the instance.
DbName	String	Yes	drds_test	The name of the database.
DrdsInstanceId	String	Yes	rm-drdsxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU678xxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
DbInstance	-	-	The details about the ApsaraDB RDS for MySQL instance of the database.
ConnectUrl	String	rm-bp1uxxxxxxxxxx.mysql.rds.aliyuncs.com	The connection URL.
DBInstanceId	String	rm-bp1xxxxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance.
DBInstanceStatus	String	1	The status of the ApsaraDB RDS for MySQL instance.
DbInstType	String	Primary	The type of the ApsaraDB RDS for MySQL instance.
Engine	String	MySQL	The engine that the ApsaraDB RDS for MySQL instance runs.

Parameter	Type	Example	Description
EngineVersion	String	5.7	The version of the engine that the ApsaraDB RDS for MySQL instance runs.
ExpireTime	String	12341434315	The timestamp when the ApsaraDB RDS for MySQL instance expires.
NetworkType	String	VPC	The network type of the ApsaraDB RDS for MySQL instance.
PayType	String	Postpaid	The billing method of the ApsaraDB RDS for MySQL instance.
Port	Integer	3306	The port of the ApsaraDB RDS for MySQL instance.
RdsInstType	String	RDS	The type of the ApsaraDB RDS for MySQL instance.
ReadOnlyInstances	-	-	The list of read-only ApsaraDB RDS for MySQL instances.
ReadOnlyInstance	-	-	The details about a read-only ApsaraDB RDS for MySQL instance.
ConnectUrl	String	rm-bp1xxxxxxxxxxxx.mysql.rds.aliyuncs.com	The connection URL.
DBInstanceId	String	rm-bp1xxxxxxxxxxxx	The ID of the read-only ApsaraDB RDS for MySQL instance.
DBInstanceStatus	String	1	The status of the read-only ApsaraDB RDS for MySQL instance.
DbInstType	String	RDS	The type of the read-only ApsaraDB RDS for MySQL instance.
Engine	String	MySQL	The engine that the read-only ApsaraDB RDS for MySQL instance runs.

Parameter	Type	Example	Description
EngineVersion	String	5.7	The version of the engine that the read-only ApsaraDB RDS for MySQL instance runs.
ExpireTime	String	1823487328173	The timestamp when the read-only ApsaraDB RDS for MySQL instance expires.
NetworkType	String	VPC	The network type of the read-only ApsaraDB RDS for MySQL instance.
PayType	String	Postpaid	The billing method of the read-only ApsaraDB RDS for MySQL instance.
Port	Integer	3306	The port of the read-only ApsaraDB RDS for MySQL instance.
RdsInstType	String	RDS	The type of the read-only ApsaraDB RDS for MySQL instance.
ReadWeight	Integer	30	The read weight of the read-only ApsaraDB RDS for MySQL instance.
RemainDays	String	0	The remaining number of days before the read-only ApsaraDB RDS for MySQL instance expires.
VersionAction	Integer	0	An invalid parameter.
ReadWeight	Integer	70	The read weight of the read-only ApsaraDB RDS for MySQL instance.
RemainDays	String	0	The remaining number of days before the read-only ApsaraDB RDS for MySQL instance expires.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDbInstance
&DbInstanceId=rm-bp1xxxxxxxxxxxx
&DbName=drds_test
&DrdsInstanceId=rm-drdsxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDbInstance>
      <RequestId>2F7F8080-9132-4279-85D0-B7E5C4305162</RequestId>
      <DbInstance>
            <DbInstType>RDS</DbInstType>
            <ReadOnlyInstances></ReadOnlyInstances>
            <EngineVersion>5.7</EngineVersion>
            <DBInstanceStatus>1</DBInstanceStatus>
            <Port>3306</Port>
            <PayType>Postpaid</PayType>
            <ReadWeight>100</ReadWeight>
            <ConnectUrl>rm-bp1xxxxxxxxxxxx.mysql.rds.aliyuncs.com</ConnectUrl>
            <DBInstanceId>rm-bp1xxxxxxxxxxxx</DBInstanceId>
            <NetworkType>VPC</NetworkType>
            <RdsInstType>Primary</RdsInstType>
            <ExpireTime></ExpireTime>
            <RemainDays>0</RemainDays>
            <Engine>MySQL</Engine>
      </DbInstance>
      <Success>true</Success>
</DescribeDrdsDbInstance>
```

JSON format

```
{
    "DbInstance":{
        "RemainDays":0,
        "ReadOnlyInstances":{
            "ReadOnlyInstance":[]
        },
        "DBInstanceId":"rm-bp1ub71ct9skc3y",
        "ReadWeight":100,
        "RdsInstType":"Primary",
        "DbInstType":"RDS",
        "ConnectUrl":"rm-bp1ub71ct9skc3y.mysql.rds.aliyuncs.com",
        "Engine":"MySQL",
        "NetworkType":"VPC",
        "Port":3306,
        "ExpireTime":"",
        "EngineVersion":"5.7",
        "DBInstanceStatus":1,
        "PayType":"Postpaid"
    },
    "RequestId":"2F7F8080-9132-4279-85D0-B7E5C4305162",
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.17. DescribeDrdsDbInstances

Queries ApsaraDB RDS for MySQL instances in a database.

You can query primary ApsaraDB RDS for MySQL instances in a database. Each primary ApsaraDB RDS for MySQL instance has a ReadOnlyInstances attribute. This attribute specifies the read-only ApsaraDB RDS for MySQL instances that are used in the current database.

Request parameters

Parameter	Type	Required	Example	Description
DbName	String	Yes	dbname	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU6xxxxxxxxxxxxxxxx	The AccessKey ID provided by Alibaba Cloud for you to connect to services.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	30	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
DbInstances	-	-	The instances used for storage in the database.
DbInstance	-	-	The instances used for storage in the database.
ConnectUrl	String	rm-m5xxxxxxxxx82.mysql.rds.aliyuncs.com	The URL of the instance used for storage. The value is returned when you call API operations to connect to the instance used for storage. ApsaraDB RDS for MySQL instances can be used for storage.
DBInstanceId	String	rm-m5xxxxxxxxx82	The ID of the instance used for storage.

Parameter	Type	Example	Description
DBInstanceStatus	String	1	The running status of the instance: • 0: The instance is being created. • 1: The instance is running. • 3: The instance is being deleted. • 5: The instance is being restarted. • 6: The instance is being upgraded or downgraded. • 7: The instance is being backed up. • 8: The network type is being changed. • 9: The instance is being migrated. • 11: Data is being migrated. • 12: A disaster recovery instance is being generated. • 13: Data is being imported. • 14: Data is being imported from other ApsaraDB RDS for MySQL instances. • 15: A switchover is being performed. • 16: A temporary instance is being created. • 17: A network is being created. • 18: The instance is being cloned. • 19: The link is being changed. • 20: The read-only instance is being migrated.

Parameter	Type	Example	Description
DbInstType	String	RDS	The type of the instance used for storage. Only ApsaraDB RDS for MySQL instances are supported.
Engine	String	MySQL	The engine of the instance used for storage. For example, MySQL.
EngineVersion	String	5.7	The engine version of the instance used for storage. For example, MySQL 5.7, MySQL 5.6, and MySQL 5.5.
ExpireTime	String	1237486127634	The time when the instance used for storage expires.
NetworkType	String	VPC	The type of the network. **Note** Apsara Stack does not support virtual private clouds (VPCs).
Port	Integer	3306	The port number.
RdsInstType	String	Primary	Indicates whether the ApsaraDB RDS for MySQL instance is primary or read-only.
ReadOnlyInstances	-	-	The read-only instances used for storage.
ReadOnlyInstance	-	-	The read-only instances used for storage.

Parameter	Type	Example	Description
ConnectUrl	String	rm-m5xxxxxxxxx82.mysql.rds.aliyuncs.com	The URL of the instance used for storage. The value is returned when you call API operations to connect to the instance used for storage. ApsaraDB RDS for MySQL instances can be used for storage.
DBInstanceStatus	String	1	The status of the instance used for storage.
DbInstType	String	RDS	The type of the instance used for storage.
Engine	String	MySQL	The engine of the instance used for storage.
EngineVersion	String	5.7	The engine version of the instance used for storage.
ExpireTime	String	123421352351234	The timestamp when the instance used for storage expires.
InstanceName	String	rm-m5xxxxxxxxx82	The invalid field.
NetworkType	String	VPC	The network type of the instance.
PayType	String	Postpaid	The billing method.
Port	Integer	3306	The port used to connect to the instance.
RdsInstType	String	RDS	The type of the instance.
ReadWeight	Integer	70	The read ratio of the instance.
RemainDays	Integer	0	The number of remaining days before the instance expires.
ReadWeight	Integer	30	The weight of the read requests in the database.

Parameter	Type	Example	Description
RemainDays	Integer	0	The number of remaining days before the subscription instance expires.
PageNumber	String	1	The page number of the returned page.
PageSize	String	10	The number of entries returned on each page.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the operation is successful.
Total	String	1	The total number of the primary ApsaraDB RDS for MySQL instances.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDbInstances
&DbName=dbname
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDbInstances>
      <PageSize>10</PageSize>
      <RequestId>658B6F25-442A-4996-8AAE-F77DAFBC9BAA</RequestId>
      <PageNumber>1</PageNumber>
      <Total>1</Total>
      <DbInstances>
            <DbInstance>
                  <DbInstType>RDS</DbInstType>
                  <ReadOnlyInstances></ReadOnlyInstances>
                  <EngineVersion>5.7</EngineVersion>
                  <DBInstanceStatus>1</DBInstanceStatus>
                  <Port>3306</Port>
                  <PayType>Postpaid</PayType>
                  <ReadWeight>100</ReadWeight>
                  <ConnectUrl>rm-m5xxxxxxxxx82.mysql.rds.aliyuncs.com</ConnectUrl>
                  <DBInstanceId>rm-m5xxxxxxxxx82</DBInstanceId>
                  <NetworkType>VPC</NetworkType>
                  <RdsInstType>Primary</RdsInstType>
                  <ExpireTime></ExpireTime>
                  <RemainDays>0</RemainDays>
                  <Engine>MySQL</Engine>
            </DbInstance>
      </DbInstances>
      <Success>true</Success>
</DescribeDrdsDbInstances>
```

JSON format

```
{
    "PageNumber":1,
    "PageSize":10,
    "RequestId":"658B6F25-442A-4996-8AAE-F77DAFBC9BAA",
    "DbInstances":{
        "DbInstance":[
            {
                "RemainDays":0,
                "ReadOnlyInstances":{
                    "ReadOnlyInstance":[]
                },
                "DBInstanceId":"rm-m5xxxxxxxx82",
                "ReadWeight":100,
                "RdsInstType":"Primary",
                "DbInstType":"RDS",
                "ConnectUrl":"rm-m5xxxxxxxx82.mysql.rds.aliyuncs.com",
                "Engine":"MySQL",
                "NetworkType":"VPC",
                "Port":3306,
                "ExpireTime":"",
                "EngineVersion":"5.7",
                "DBInstanceStatus":1,
                "PayType":"Postpaid"
            }
        ]
    },
    "Success":true,
    "Total":1
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.18. DescribeDrdsDbRdsNameList

Queries the IDs of the storage instances of a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDbRdsNameList	The operation that you want to perform. Set the value to DescribeDrdsDbRdsNameList.
DbName	String	Yes	drds_test	The name of the database.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU67xxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
InstanceNameList	-	rm-m5xxxxxxxx82	The IDs of storage instances.
InstanceName	-	-	The ID of a storage instance.
RequestId	String	37537B38-A663-45CB-A81F-E3B202BB2415	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDbRdsNameList
&DbName=drds_test
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDbRdsNameList>
      <RequestId>37537B38-A663-45CB-A81F-E3B202BB2415</RequestId>
      <InstanceNameList>
            <InstanceName>rm-m5xxxxxxxx82</InstanceName>
      </InstanceNameList>
      <Success>true</Success>
</DescribeDrdsDbRdsNameList>
```

JSON format

```
{
    "InstanceNameList":{
        "InstanceName":[
            "rm-m5xxxxxxxx82"
        ]
    },
    "RequestId":"37537B38-A663-45CB-A81F-E3B202BB2415",
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.19. DescribeDrdsDbRdsRelationInfo

Queries the structure information of storage instances for a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDbRdsRelationInfo	The operation that you want to perform. Set the value to DescribeDrdsDbRdsRelationInfo.
DbName	String	Yes	drds_test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU67xxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The structure information about the storage instances of the database. Each item corresponds to a primary storage instance.

Parameter	Type	Example	Description
Data	-	-	The details about a primary storage instance of the database.
RdsInstanceId	String	rm-m5xxxxxxxxx82	The ID of the primary storage instance.
ReadOnlyInstanceInfo	-	rm-m5xxxxxxxxx82	The information about read-only storage instances of the primary storage instance.
ReadOnlyInstanceIds	-	-	The IDs of the read-only storage instances.
UsedInstanceId	String	rm-m5xxxxxxxxx82	The ID of the used storage instance. For the primary instance, the used storage instance is the primary storage instance. For the read-only instance, the used storage instance is the optional storage instance.
UsedInstanceType	String	RDS	The type of the used storage instance.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDbRdsRelationInfo
&DbName=drds_test
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDbRdsRelationInfo>
      <RequestId>E827BEE8-A8BE-4E86-992A-E6400B263CB1</RequestId>
      <Data>
            <Data>
                  <ReadOnlyInstanceInfo>
                        <ReadOnlyInstanceIds>rm-m5xxxxxxxxx82</ReadOnlyInstanceIds>
                  </ReadOnlyInstanceInfo>
                  <UsedInstanceId>rm-m5xxxxxxxxx82</UsedInstanceId>
                  <UsedInstanceType>RDS</UsedInstanceType>
                  <RdsInstanceId>rm-m5xxxxxxxxx82</RdsInstanceId>
            </Data>
      </Data>
      <Success>true</Success>
</DescribeDrdsDbRdsRelationInfo>
```

JSON format

```
{
    "Data":{
        "Data":[
            {
                "UsedInstanceType":"RDS",
                "RdsInstanceId":"rm-m5xxxxxxxxx82",
                "UsedInstanceId":"rm-m5xxxxxxxxx82",
                "ReadOnlyInstanceInfo":{
                    "ReadOnlyInstanceIds":[
                        "rm-m5xxxxxxxxx82"
                    ]
                }
            }
        ]
    },
    "RequestId":"E827BEE8-A8BE-4E86-992A-E6400B263CB1",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.20. DescribeDrdsDbTasks

Queries incomplete tasks for a database.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDbTasks	The operation that you want to perform. Set the value to DescribeDrdsDbTasks.
DbName	String	Yes	drds_test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU678Uxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
TaskType	String	No	create_db	The type of the task. If this parameter is not specified, all types of tasks are queried.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Tasks	-	-	The list of returned tasks.
Task	-	-	The details about a task.
AllowCancel	Boolean	false	Indicates whether the task can be canceled.
ExpandType	String	hot_expand	The type of the scale-out task. Valid values: smooth_expand and hot_expand.
GmtCreate	Long	123978138412341	The timestamp when the task was created.
Label	String	create_db	The type of the task.

Parameter	Type	Example	Description
ParentJobId	String	123214	The ID of the parent task.
Progress	Integer	99	The task progress. Valid values: 0 to 100.
ShowProgress	Boolean	true	Indicates whether the task progress was displayed.
TargetId	Long	12312	The ID of the incomplete task.
TaskDetail	String	{}	The details about the task. Example: the details about a smooth scale-out task.
TaskName	String	Database creation task	The name of the incomplete task.
TaskPhase	String	1	The current phase of the incomplete task.
TaskStatus	Integer	1	The status of the incomplete task. Valid values: • 0: running • 1: success • 2: failed • 3: canceled
TaskType	Integer	8	The type of the incomplete task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDbTasks
&DbName=drds_test
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDbTasks>
      <Tasks>
            <Task>
                  <AllowCancel>false</AllowCancel>
                  <ExpandType></ExpandType>
                  <GmtCreate>1568696422000</GmtCreate>
                  <Label>create_db</Label>
                  <ParentJobId>123</ParentJobId>
                  <Progress>90</Progress>
                  <ShowProgress>true</ShowProgress>
                  <TargetId>154</TargetId>
                  <TaskDetail></TaskDetail>
                  <TaskName>Database creation task</TaskName>
                  <TaskPhase>1</TaskPhase>
                  <TaskStatus>0</TaskStatus>
                  <TaskType>8</TaskType>
            </Task>
      </Tasks>
      <RequestId>7E54C57C-DF5A-4FE8-8E25-DC888817B54D</RequestId>
      <Success>true</Success>
</DescribeDrdsDbTasks>
```

JSON format

```
{
    "RequestId":"7E54C57C-DF5A-4FE8-8E25-DC888817B54D",
    "Tasks":{
        "Task":[
            {
                "ParentJobId":123,
                "AllowCancel":false,
                "GmtCreate":1568696422000,
                "TaskName":"Database creation task",
                "Progress":90,
                "TargetId":154,
                "ExpandType":"",
                "ShowProgress":true,
                "TaskDetail":"",
                "TaskPhase":1,
                "TaskStatus":0,
                "Label":"create_db",
                "TaskType":8
            }
        ]
    },
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.21. DescribeDrdsInstanceDbMonitor

Queries the performance monitoring data of a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstanceDbMonitor	The operation that you want to perform. Set the value to DescribeDrdsInstanceDbMonitor.
DbName	String	Yes	drds_test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
EndTime	Long	Yes	1568705520000	The timestamp that specifies the end of the time range to query.
Key	String	Yes	qps	The monitoring metric.
StartTime	Long	Yes	1568701920000	The timestamp that specifies the beginning of the time range to query.
AccessKeyId	String	No	ASU67xxxxxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The list of returned monitoring data.
Key	String	qps	The monitoring metric.

Parameter	Type	Example	Description
Unit	String	qps	The unit of the monitoring metric.
Values	-	-	The obtained values of the monitoring metric.
Date	Long	1568705520000	The timestamp when the value was obtained.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstanceDbMonitor
&DbName=drds_test
&DrdsInstanceId=drdsxxxxxxxxxxx
&EndTime=1568705520000
&Key=qps
&StartTime=1568701920000
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstanceDbMonitor>
      <RequestId>D6A88429-BA1E-4294-BE37-E82167355122</RequestId>
      <Data>
            <Values>
                  <Date>1568705520000</Date>
                  <Value>10000</Value>
            </Values>
            <Unit>qps</Unit>
            <Key>qps</Key>
      </Data>
      <Success>true</Success>
</DescribeDrdsInstanceDbMonitor>
```

JSON format

```
{
    "Data":[
        {
            "Values":[
                {
                    "Value":10000,
                    "Date":1568705520000
                }
            ],
            "Key":"qps",
            "Unit":"qps"
        }
    ],
    "RequestId":"D6A88429-BA1E-4294-BE37-E82167355122",
    "Success":true
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.22. DescribeDrdsShardingDbs

Queries details about a horizontally partitioned database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsShardingDbs	The operation that you want to perform. Set the value to DescribeDrdsShardingDbs.
DbName	String	Yes	drds_test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.
DbNamePattern	String	No	test	The matching pattern of the database name.

Response parameters

Parameter	Type	Example	Description
RequestId	String	509BDE17-505A-4B3B-854D-30D3F092502F	The ID of the request.
ShardingDbs	-	-	The list of database shards.
ShardingDb	-	-	The details about a database shard.
BlockingTimeout	Integer	5000	The length of time that a transaction waits to obtain a lock.
ConnectUrl	String	100.xx.xx.100:11569	The connection URL.
ConnectionProperties	String	connectTimeout=3000;autoReconnect=true;failOverReadOnly=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8	The properties of the connection string.
DbInstanceId	String	rm-bp1xxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance to which the database shard belongs.
DbStatus	String	running	The status of the database shard.
DbType	String	mysql	The type of the database shard.
GroupName	String	TEMP1_1568171495522SABE_KUP4_0000	The name of the table shard.
IdleTimeOut	Integer	30	The idle connection timeout.

Parameter	Type	Example	Description
MaxPoolSize	Integer	60	The maximum size of the connection pool.
MinPoolSize	Integer	5	The minimum size of the connection pool.
PreparedStatementCacheSize	Integer	0	The size of the result cache.
ShardingDbName	String	temp1_zhk1_0000	The name of the database shard.
UserName	String	pg284mi8	The username used to connect to the ApsaraDB RDS for MySQL instance.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Request parameters

```
http(s)://[Endpoint]/? Action=DescribeDrdsShardingDbs
&DbName=drds_test
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsShardingDbsResponse>
      <RequestId>509BDE17-505A-4B3B-854D-30D3F092502F</RequestId>
      <ShardingDbs>
            <ShardingDb>
                  <ShardingDbName>temp1_zhk1_0000</ShardingDbName>
                  <GroupName>TEMP1_1568171495522SABE_KUP4_0000</GroupName>
                  <MinPoolSize>5</MinPoolSize>
                  <IdleTimeOut>30</IdleTimeOut>
                  <DbStatus>RW</DbStatus>
                  <MaxPoolSize>60</MaxPoolSize>
                  <UserName>pg284mi8</UserName>
                  <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                  <DbType>mysql</DbType>
                  <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                  <BlockingTimeout>5000</BlockingTimeout>
                  <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                  <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverReadOnly=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</ConnectionProperties>
```

```
            </ShardingDb>
            <ShardingDb>
                  <ShardingDbName>temp1_zhk1_0001</ShardingDbName>
                  <GroupName>TEMP1_1568171495522SABE_KUP4_0001</GroupName>
                  <MinPoolSize>5</MinPoolSize>
                  <IdleTimeOut>30</IdleTimeOut>
                  <DbStatus>RW</DbStatus>
                  <MaxPoolSize>60</MaxPoolSize>
                  <UserName>pg284mi8</UserName>
                  <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                  <DbType>mysql</DbType>
                  <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                  <BlockingTimeout>5000</BlockingTimeout>
                  <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                  <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverRead
Only=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</Conne
ctionProperties>
            </ShardingDb>
            <ShardingDb>
                  <ShardingDbName>temp1_zhk1_0002</ShardingDbName>
                  <GroupName>TEMP1_1568171495522SABE_KUP4_0002</GroupName>
                  <MinPoolSize>5</MinPoolSize>
                  <IdleTimeOut>30</IdleTimeOut>
                  <DbStatus>RW</DbStatus>
                  <MaxPoolSize>60</MaxPoolSize>
                  <UserName>pg284mi8</UserName>
                  <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                  <DbType>mysql</DbType>
                  <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                  <BlockingTimeout>5000</BlockingTimeout>
                  <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                  <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverRead
Only=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</Conne
ctionProperties>
            </ShardingDb>
            <ShardingDb>
                  <ShardingDbName>temp1_zhk1_0003</ShardingDbName>
                  <GroupName>TEMP1_1568171495522SABE_KUP4_0003</GroupName>
                  <MinPoolSize>5</MinPoolSize>
                  <IdleTimeOut>30</IdleTimeOut>
                  <DbStatus>RW</DbStatus>
                  <MaxPoolSize>60</MaxPoolSize>
                  <UserName>pg284mi8</UserName>
                  <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                  <DbType>mysql</DbType>
                  <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                  <BlockingTimeout>5000</BlockingTimeout>
                  <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                  <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverRead
Only=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</Conne
ctionProperties>
            </ShardingDb>
            <ShardingDb>
                  <ShardingDbName>temp1_zhk1_0004</ShardingDbName>
                  <GroupName>TEMP1_1568171495522SABE_KUP4_0004</GroupName>
```

```
                    <GroupName>TEMP1_1568171495522SABE_KUP4_0004</GroupName>
                    <MinPoolSize>5</MinPoolSize>
                    <IdleTimeOut>30</IdleTimeOut>
                    <DbStatus>RW</DbStatus>
                    <MaxPoolSize>60</MaxPoolSize>
                    <UserName>pg284mi8</UserName>
                    <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                    <DbType>mysql</DbType>
                    <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                    <BlockingTimeout>5000</BlockingTimeout>
                    <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                    <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverReadOnly=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</ConnectionProperties>
              </ShardingDb>
              <ShardingDb>
                    <ShardingDbName>temp1_zhk1_0005</ShardingDbName>
                    <GroupName>TEMP1_1568171495522SABE_KUP4_0005</GroupName>
                    <MinPoolSize>5</MinPoolSize>
                    <IdleTimeOut>30</IdleTimeOut>
                    <DbStatus>RW</DbStatus>
                    <MaxPoolSize>60</MaxPoolSize>
                    <UserName>pg284mi8</UserName>
                    <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                    <DbType>mysql</DbType>
                    <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                    <BlockingTimeout>5000</BlockingTimeout>
                    <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                    <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverReadOnly=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</ConnectionProperties>
              </ShardingDb>
              <ShardingDb>
                    <ShardingDbName>temp1_zhk1_0006</ShardingDbName>
                    <GroupName>TEMP1_1568171495522SABE_KUP4_0006</GroupName>
                    <MinPoolSize>5</MinPoolSize>
                    <IdleTimeOut>30</IdleTimeOut>
                    <DbStatus>RW</DbStatus>
                    <MaxPoolSize>60</MaxPoolSize>
                    <UserName>pg284mi8</UserName>
                    <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                    <DbType>mysql</DbType>
                    <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                    <BlockingTimeout>5000</BlockingTimeout>
                    <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                    <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverReadOnly=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</ConnectionProperties>
              </ShardingDb>
              <ShardingDb>
                    <ShardingDbName>temp1_zhk1_0007</ShardingDbName>
                    <GroupName>TEMP1_1568171495522SABE_KUP4_0007</GroupName>
                    <MinPoolSize>5</MinPoolSize>
                    <IdleTimeOut>30</IdleTimeOut>
                    <DbStatus>RW</DbStatus>
```

```
                    <MaxPoolSize>60</MaxPoolSize>
                    <UserName>pg284mi8</UserName>
                    <ConnectUrl>100.xx.xx.101:11569</ConnectUrl>
                    <DbType>mysql</DbType>
                    <DbInstanceId>rm-bp1hxxxxxxxxxx</DbInstanceId>
                    <BlockingTimeout>5000</BlockingTimeout>
                    <PreparedStatementCacheSize>0</PreparedStatementCacheSize>
                    <ConnectionProperties>connectTimeout=3000;autoReconnect=true;failOverRead
Only=false;socketTimeout=900000;rewriteBatchedStatements=true;characterEncoding=utf8</Conne
ctionProperties>
            </ShardingDb>
      </ShardingDbs>
      <Success>true</Success>
</DescribeDrdsShardingDbsResponse>
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.23. DescribeDrdsSlowSqls

Queries slow SQL statements of a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsSlowSqls	The operation that you want to perform. Set the value to DescribeDrdsSlowSqls.
DbName	String	Yes	tempdb	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
EndTime	Long	Yes	1568289311	The end of the time range to query.
ExeTime	Long	Yes	1568289311	The SQL execution time.
StartTime	Long	Yes	1568267711	The beginning of the time range to query.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	20	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
Items	-	-	The list of returned slow SQL statements.
Item	-	-	The details about a slow SQL statement.
Host	String	10.xx.xx.26	The IP address of the host where the slow SQL statement is executed.
ResponseTime	Long	1568267711	The response time.
Schema	String	user	The schema of the PolarDB-X database.
SendTime	Long	1568267711	The time when the slow SQL statement was sent.
Sql	String	SELECT count(1) from payment_order where order_status = '08';	The content of the slow SQL statement.

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	20	The number of entries returned per page.
RequestId	String	509BDE17-505A-4B3B-854D-30D3F092502F	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Total	Integer	1	The total number of slow SQL statements.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsSlowSqls
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsSlowSqlsResponse>
      <Items>
            <Item>
                  <Host> 10.xx.xx.26 </Host>
                  <ResponseTime>2019-09-12 13:55:00</ResponseTime>
                  <Schema>user</Schema>
                  <SendTime>2019-09-12 13:55:00</SendTime>
                  <Sql>SELECT count(1) from  payment_order where  order_status = '08';</Sql
>
            </Item>
      </Items>
      <PageNumber>1</PageNumber>
      <PageSize>30</PageSize>
      <RequestId>B2493C08-AB69-44AB-8C1D-6AB17C2CF48F</RequestId>
      <Success>true</Success>
      <Total>0</Total>
</DescribeDrdsSlowSqlsResponse>
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.24. DescribeDrdsSqlAuditStatus

Queries the details about SQL audit for a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsSqlAuditStatus	The operation that you want to perform. Set the value to DescribeDrdsSqlAuditStatus.
DrdsInstanceId	String	Yes	drdsxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
Data	-	-	The SQL audit details about a database.
DbName	String	table1	The name of the database.
Detailed	String	test	The details about SQL audit.
Enabled	String	true	Indicates whether SQL audit was enabled for the database.

Parameter	Type	Example	Description
RequestId	String	DC3ABA3E-0F8A-4596-9104-F5155C34315B	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsSqlAuditStatus
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeGlobalBroadcastTypeResponse>
      <Data>
            <DbName>table1</DbName>
            <Detailed>test</Detailed>
            <Enabled>true</Enabled>
      </Data>
      <RequestId>DC3ABA3E-0F8A-4596-9104-F5155C34315B</RequestId>
      <Success>true</Success>
</DescribeGlobalBroadcastTypeResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.25. DescribeExpandLogicTableInfoList

Queries the shard keys of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeExpandLogicTableInfoList	The operation that you want to perform. Set the value to DescribeExpandLogicTableInfoList.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
data	-	-	The details about shard keys.
ShardDbKey	String	id	The database shard key.
ShardTbKey	String	address	The table shard key.
TableName	String	employee_split2	The name of the table.
RequestId	String	0B6B7BDC-575D-4A77-A4F8-24B7EF027B75	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeExpandLogicTableInfoList
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeExpandLogicTableInfoListResponse>
      <Data>
            <data>
                  <ShardDbKey>id</ShardDbKey>
                  <TableName>employee_split2</TableName>
                  <ShardTbKey>address</ShardTbKey>
            </data>
      </Data>
      <RequestId>0B6B7BDC-575D-4A77-A4F8-24B7EF027B75</RequestId>
      <Success>true</Success>
</DescribeExpandLogicTableInfoListResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.26. DescribeGlobalBroadcastType

Queries whether the table in a PolarDB-X database is a broadcast table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeGlobalBroadcastType	The operation that you want to perform. Set the value to DescribeGlobalBroadcastType.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
IsSyncType	Boolean	false	Indicates whether the table is a broadcast table.
RequestId	String	DC3ABA3E-0F8A-4596-9104-F5155C34315B	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeGlobalBroadcastType
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeGlobalBroadcastTypeResponse>
      <Data>
            <IsSyncType>false</IsSyncType>
      </Data>
      <RequestId>DC3ABA3E-0F8A-4596-9104-F5155C34315B</RequestId>
      <Success>true</Success>
</DescribeGlobalBroadcastTypeResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.27. DescribeHotDbList

Queries the available databases for hot-spot scale-out of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeHotDbList	The operation that you want to perform. Set the value to DescribeHotDbList.
DbName	String	Yes	test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
List	-	-	The list of returned items.
InstanceDb	-	-	The details about an item.

Parameter	Type	Example	Description
HotDbList	-	test,test	The list of hot-spot databases.
data	-	-	The details about a hot-spot database.
RandomCode	String	989fdsf	The random code.
Msg	String	msg	The message.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeHotDbList
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeHotDbListResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
      <Msg>msg</Msg>
      <RandomCode>msg</RandomCode>
      <Data>
            <List>
                  <HotDbList></HotDbList>
            </List>
      </Data>
</DescribeHotDbListResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.28. DescribeInstDbLogInfo

Queries the time range of historical SQL data that can be imported to a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstDbLogInfo	The operation that you want to perform. Set the value to DescribeInstDbLogInfo.
DbName	String	Yes	drds_test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
LogTimeRange	-	-	The supported time range.
SupportLatestTime	Long	1568267711	The beginning of the time range.
SupportOldestTime	Long	1568267711	The end of the time range.
RequestId	String	DC3ABA3E-0F8A-4596-9104-F5155C34315B	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeInstDbLogInfo
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeInstDbLogInfoResponse>
      <LogTimeRange>
            <SupportLatestTime>1568267711</SupportLatestTime>
            <SupportOldestTime>1568267711</SupportOldestTime>
      </LogTimeRange>
      <RequestId>DC3ABA3E-0F8A-4596-9104-F5155C34315B</RequestId>
      <Success>true</Success>
</DescribeInstDbLogInfoResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.29. DescribeRDSPerformance

Queries the performance data of ApsaraDB RDS for MySQL instances for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRDSPerformance	The operation that you want to perform. Set the value to DescribeRDSPerformance.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
Keys	String	Yes	cpu	The performance metrics.
RdsInstanceId	String	Yes	rm-hbxxxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.
DbInstType	String	No	mysql	The type of the ApsaraDB RDS for MySQL database.
EndTime	Long	No	1568267711	The end of the time range to query.
StartTime	Long	No	1568267711	The beginning of the time range to query.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
Key	String	cpuusage	The performance metric.
NodeName	String	cpu	The name of the performance metric.
NodeNum	Integer	1	The number of nodes.
Unit	String	%	The unit of the performance metric.
Values	-	-	The value set.
Date	Long	1568625038000	The time when the value was obtained.
Value	String	0.65	The value of the performance metric.
RequestId	String	F06B92ED-EF1B-4F8E-8ACA-ECEFD5E4271C	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeRDSPerformance
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeRDSPerformanceResponse>
      <Data>
            <Key>cpuusage</Key>
            <NodeName>1</NodeName>
            <Unit>%</Unit>
            <Values>
              <Date>1568625038000</Date>
              <Value>0.65</Value>
            </Values>
      </Data>
      <RequestId>DC3ABA3E-0F8A-4596-9104-F5155C34315B</RequestId>
      <Success>true</Success>
</DescribeRDSPerformanceResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.30. DescribeRdsPerformanceSummary

Queries the performance metrics of ApsaraDB RDS for MySQL instances for a PolarDB-X instance, including CPU, input/output operations per second (IOPS), and active sessions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRdsPerformanceSummary	The operation that you want to perform. Set the value to DescribeRdsPerformanceSummary.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
RdsInstanceId.N	RepeatList	Yes	['rm-bp1xxxxxxxxxxx','rm-bp1xxxxxxxxxx']	The list of ApsaraDB RDS for MySQL instances.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RdsPerformanceInfos	-	-	The collection of RdsPerformanceInfos objects.
ActiveSessions	Integer	0	The number of active sessions on the current ApsaraDB RDS for MySQL instance.
Cpu	Float	0.65	The CPU utilization of the ApsaraDB RDS for MySQL instance.
Iops	Float	10.56	The IOPS of the ApsaraDB RDS for MySQL instance.
RdsId	String	rm-bp1xxxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance.
TotalSessions	Integer	241	The total number of sessions on the current ApsaraDB RDS for MySQL instance.
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeRdsPerformanceSummary
&DrdsInstanceId=drdsxxxxxxxxxxx
&RdsInstanceId.1=['rm-bp1xxxxxxxxxxx','rm-bp1xxxxxxxxxx']
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeRdsPerformanceSummaryResponse>
        <code>200</code>
        <data>
                <RequestId>395533CB-12E8-4FDC-8934-127FD2024C0A</RequestId>
                <RdsPerformanceInfos>
                        <TotalSessions>241</TotalSessions>
                        <Cpu>0.65</Cpu>
                        <Iops>10.56</Iops>
                        <RdsId>rm-bp1xxxxxxxxxxx</RdsId>
                        <ActiveSessions>0</ActiveSessions>
                </RdsPerformanceInfos>
                <Success>true</Success>
        </data>
        <requestId>395533CB-12E8-4FDC-8934-127FD2024C0A</requestId>
        <successResponse>true</successResponse>
</DescribeRdsPerformanceSummaryResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"395533CB-12E8-4FDC-8934-127FD2024C0A",
    "data":{
        "RequestId":"395533CB-12E8-4FDC-8934-127FD2024C0A",
        "RdsPerformanceInfos":[
            {
                "Cpu":0.65,
                "RdsId":"rm-bp1xxxxxxxxxxx",
                "TotalSessions":241,
                "Iops":10.56,
                "ActiveSessions":0
            }
        ],
        "Success":true
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.31. DescribeRdsSuperAccountInstances

Queries the privileged accounts of ApsaraDB RDS for MySQL instances for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRdsSuperAccountInstances	The operation that you want to perform. Set the value to DescribeRdsSuperAccountInstances.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
RdsInstance.N	RepeatList	Yes	['rm-bp1xxxxxxxxxx','rm-bp1xxxxxxxxx']	The list of ApsaraDB RDS for MySQL instances.
AccessKeyId	String	No	****	The AccessKey ID provided to you by Alibaba Cloud.
DbInstType	String	No	RDS	The type of the database instance. Default value: RDS.

Response parameters

Parameter	Type	Example	Description
DbInstances	-	rm-bp1xxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance.
DbInstance	-	-	The list of privileged accounts.
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeRdsSuperAccountInstances
&DrdsInstanceId=drdsxxxxxxxxxx
&RdsInstance.1=['rm-bp1xxxxxxxxxx','rm-bp1xxxxxxxxx']
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeRdsSuperAccountInstancesResponse>
      <code>200</code>
      <data>
            <RequestId>62CA96F4-B94F-4059-B23E-A58CCF318D3E</RequestId>
            <DbInstances></DbInstances>
      </data>
      <requestId>62CA96F4-B94F-4059-B23E-A58CCF318D3E</requestId>
      <successResponse>true</successResponse>
</DescribeRdsSuperAccountInstancesResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"62CA96F4-B94F-4059-B23E-A58CCF318D3E",
    "data":{
        "RequestId":"62CA96F4-B94F-4059-B23E-A58CCF318D3E",
        "DbInstances":{
            "DbInstance":[]
        }
    },
    "code":"200"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.2.32. DescribeRecycleBinStatus

Queries the status of the table recycle bin for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRecycleBinStatus	The operation that you want to perform. Set the value to DescribeRecycleBinStatus.

Parameter	Type	Required	Example	Description
DbName	String	Yes	tpch_db	The name of database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Status	String	disable	The status of the table recycle bin. Valid values: • disable • enable
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeRecycleBinStatus
&DbName=tpch_db
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeRecycleBinStatusResponse>
      <code>200</code>
      <data>
            <Status>enable</Status>
            <RequestId>E7D9B458-2C2D-44E3-BD55-92AD2172303F</RequestId>
            <Success>true</Success>
      </data>
      <requestId>E7D9B458-2C2D-44E3-BD55-92AD2172303F</requestId>
      <successResponse>true</successResponse>
</DescribeRecycleBinStatusResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"E7D9B458-2C2D-44E3-BD55-92AD2172303F",
    "data":{
        "Status":"enable",
        "RequestId":"E7D9B458-2C2D-44E3-BD55-92AD2172303F",
        "Success":true
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.33. DescribeRecycleBinTables

Queries the tables that can be recycled for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRecycleBinTables	The operation that you want to perform. Set the value to DescribeRecycleBinTables.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
CreateTime	String	2019-09-16 14:42:06	The time when the table was created.
OriginalTableName	String	BIN_T4AG3CY5WWXPKHITCHJY	The original name of the table.
TableName	String	drds_params	The current name of the table.
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeRecycleBinTables
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeRecycleBinTablesResponse>
      <code>200</code>
      <data>
            <RequestId>EC985705-2D6B-4B84-9732-BF8F5DCA247A</RequestId>
            <Data>
                  <OriginalTableName>drds_params</OriginalTableName>
                  <TableName>BIN_T4AG3CY5WWXPKHITCHJY</TableName>
                  <CreateTime>2019-09-16 14:42:06</CreateTime>
            </Data>
            <Success>true</Success>
      </data>
      <requestId>EC985705-2D6B-4B84-9732-BF8F5DCA247A</requestId>
      <successResponse>true</successResponse>
</DescribeRecycleBinTablesResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"EC985705-2D6B-4B84-9732-BF8F5DCA247A",
    "data":{
        "Data":[
            {
                "OriginalTableName":"drds_params",
                "CreateTime":"2019-09-16 14:42:06",
                "TableName":"BIN_T4AG3CY5WWXPKHITCHJY"
            }
        ],
        "RequestId":"EC985705-2D6B-4B84-9732-BF8F5DCA247A",
        "Success":true
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.34. DescribeShardTaskInfo

Queries details about a partitioning task of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeShardTaskInfo	The operation that you want to perform. Set the value to DescribeShardTaskInfo.

Parameter	Type	Required	Example	Description
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
SourceTableName	String	Yes	a1	The name of the source table.
TargetTableName	String	Yes	a2	The name of the destination table.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
Expired	String	0	The number of remaining days before the task expires.
Full	-	-	The full migration task.
Expired	Integer	0	The number of remaining days before the full migration task expires.
Progress	Integer	100	The full migration progress.
StartTime	String	2019-09-16 15:11:53	The start time of the full migration task.
Total	Integer	2	The total number of full migration tasks.
Tps	Integer	0	The current TPS of the full migration task.
FullCheck	-	-	The full check task.
Expired	Integer	0	The number of remaining days before the full check task expires.

Parameter	Type	Example	Description
Progress	Integer	0	The full check progress.
StartTime	String	2019-09-16 15:12:53	The start time of the full check task.
Total	Integer	0	The total number of full check tasks.
Tps	Integer	0	The current TPS of the full check task.
FullRevise	-	-	The full correction task.
Expired	Integer	0	The number of remaining days before the full correction task expires.
Progress	Integer	0	The full correction progress.
StartTime	String	2019-09-16 15:12:53	The start time of the full correction task.
Total	Integer	0	The total number of full correction tasks.
Tps	Integer	0	The current TPS of the full correction task.
Increment	-	-	The increment.
Delay	Integer	1568617906	The latency of the incremental synchronization.
StartTime	String	2019-09-16 15:12:53	The start time of the incremental synchronization.
Tps	Integer	0	The current TPS of the incremental synchronization.
Progress	String	0	The incremental synchronization progress.
Review	-	-	The review task.
Expired	Integer	0	The number of remaining days before the review task expires.

Parameter	Type	Example	Description
Progress	Integer	0	The review progress.
StartTime	String	2019-09-16 15:12:53	The start time of the review task.
Total	Integer	0	The total number of review tasks.
Tps	Integer	0	The current TPS of the review task.
SourceTableName	String	a1	The name of the source table.
Stage	String	2	The current stage of the task.
Status	String	Incremental synchronization	The status of the task.
TargetTableName	String	a2	The name of the destination table.
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeShardTaskInfo
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeShardTaskInfoResponse>
      <code>200</code>
      <data>
            <RequestId>42A9A85B-60F3-4858-88CD-2EE75251D19F</RequestId>
            <Data>
                  <Status>Incremental synchronization</Status>
                  <SourceTableName>a1</SourceTableName>
                  <Progress>0</Progress>
                  <FullCheck>
                        <Progress>0</Progress>
                        <Tps>0</Tps>
                        <Total>0</Total>
                        <Expired>0</Expired>
                  </FullCheck>
                  <Increment>
                        <Tps>0</Tps>
                        <StartTime>2019-09-16 15:12:53</StartTime>
                        <Delay>1568617906</Delay>
                  </Increment>
                  <FullRevise>
                        <Progress>0</Progress>
                        <Tps>0</Tps>
                        <Total>0</Total>
                        <Expired>0</Expired>
                  </FullRevise>
                  <Stage>2</Stage>
                  <Expired>0</Expired>
                  <Review>
                        <Progress>0</Progress>
                        <Tps>0</Tps>
                        <Total>0</Total>
                        <Expired>0</Expired>
                  </Review>
                  <TargetTableName>a2</TargetTableName>
                  <Full>
                        <Progress>100</Progress>
                        <Tps>0</Tps>
                        <Total>2</Total>
                        <StartTime>2019-09-16 15:11:53</StartTime>
                        <Expired>0</Expired>
                  </Full>
            </Data>
            <Success>true</Success>
      </data>
      <requestId>42A9A85B-60F3-4858-88CD-2EE75251D19F</requestId>
      <successResponse>true</successResponse>
</DescribeShardTaskInfoResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"42A9A85B-60F3-4858-88CD-2EE75251D19F",
    "data":{
        "Data":{
            "Status":"Incremental synchronization",
            "FullRevise":{
                "Tps":0,
                "Expired":0,
                "Total":0,
                "Progress":0
            },
            "Full":{
                "Tps":0,
                "Expired":0,
                "StartTime":"2019-09-16 15:11:53",
                "Total":2,
                "Progress":100
            },
            "Increment":{
                "Tps":0,
                "Delay":1568617906,
                "StartTime":"2019-09-16 15:12:53"
            },
            "Expired":"0",
            "SourceTableName":"a1",
            "FullCheck":{
                "Tps":0,
                "Expired":0,
                "Total":0,
                "Progress":0
            },
            "Review":{
                "Tps":0,
                "Expired":0,
                "Total":0,
                "Progress":0
            },
            "TargetTableName":"a2",
            "Stage":"2",
            "Progress":"0"
        },
        "RequestId":"42A9A85B-60F3-4858-88CD-2EE75251D19F",
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.35. DescribeShardTaskList

Queries the partitioning tasks of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeShardTaskList	The operation that you want to perform. Set the value to DescribeShardTaskList.
DbName	String	Yes	testdb	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
Query	String	Yes	a1	The query criteria.
TaskType	String	Yes	SINGLE_TO_SHARD	The type of the task.
CurrentPage	Integer	No	1	The page number of the current page.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
List	-	-	The list of returned objects.
Delay	Integer	0	The latency of the task.
Expired	String	0	The time when the task expired.

Parameter	Type	Example	Description
Expired	Long	0	The number of remaining days before the task expires.
Progress	Integer	0	The progress of the task.
SourceTableName	String	a1	The name of the source table.
Stage	Integer	1	The current stage of the task.
TargetTableName	String	a2	The name of the destination table.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	890BB376-5746-4145-A088-A455F8D359D0	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.
Total	Integer	1	The total number of tables.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeShardTaskList
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeShardTaskListResponse>
      <code>200</code>
      <data>
            <PageSize>10</PageSize>
            <RequestId>890BB376-5746-4145-A088-A455F8D359D0</RequestId>
            <PageNumber>1</PageNumber>
            <Total>1</Total>
            <List>
                  <SourceTableName>a1</SourceTableName>
                  <Progress>0</Progress>
                  <Stage>1</Stage>
                  <Expired>0</Expired>
                  <TargetTableName>a2</TargetTableName>
                  <Delay>0</Delay>
            </List>
            <Success>true</Success>
      </data>
      <requestId>890BB376-5746-4145-A088-A455F8D359D0</requestId>
      <successResponse>true</successResponse>
</DescribeShardTaskListResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"890BB376-5746-4145-A088-A455F8D359D0",
    "data":{
        "PageNumber":1,
        "PageSize":10,
        "RequestId":"890BB376-5746-4145-A088-A455F8D359D0",
        "Success":true,
        "List":[
            {
                "Delay":0,
                "Expired":0,
                "SourceTableName":"a1",
                "TargetTableName":"a2",
                "Stage":1,
                "Progress":0
            }
        ],
        "Total":1
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.36. DescribeSqlFlashbakTask

Queries the flashback tasks of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSqlFlashbakTask	The operation that you want to perform. Set the value to DescribeSqlFlashbakTask.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	*****	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
SqlFlashbackTasks	-	-	The list of returned flashback tasks.
SqlFlashbackTask	-	-	The details about a flashback task.
DbName	String	drds_flashback	The name of the PolarDB-X database for the flashback task.
DownloadUrl	String	http://...	The download URL.
ExpireTime	Long	1569216270000	The time when the download URL expires.
GmtCreate	Long	1568611408000	The time when the task was created.
GmtModified	Long	1568611469000	The time when the task was modified.
Id	Long	238	The ID of the primary key.

Parameter	Type	Example	Description
InstId	String	drdsxxxxxxxxxxx	The ID of the instance.
RecallProgress	Integer	10	The progress of the reverse call.
RecallRestoreType	Integer	0	The recovery type. Valid values: image restoration and reverse restoration.
RecallStatus	Integer	1	The status of the data recall task.
RecallType	Integer	1	The recall type. Valid values: exact match and fuzzy match.
SearchEndTime	Long	1568609597000	The end time of the query.
SearchStartTime	Long	1568609597000	The start time of the query.
SqlCounter	Long	0	The number of restored data rows.
SqlPk	String	id	The value of the SQL primary key.
SqlType	String	Insert,Update,Delete	The type of the SQL statement.
TableName	String	drds_params	The name of the table to which data belongs.
TraceId	String	trace	The trace ID of the SQL statement.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeSqlFlashbakTask
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeSqlFlashbakTaskResponse>
      <code>200</code>
      <data>
            <SqlFlashbackTasks>
                  <SqlFlashbackTask>
                        <GmtModified>1568611469000</GmtModified>
                        <SearchEndTime>1568611397000</SearchEndTime>
                        <RecallStatus>2</RecallStatus>
                        <SqlPk></SqlPk>
                        <RecallRestoreType>0</RecallRestoreType>
                        <TableName>drds_params</TableName>
                        <GmtCreate>1568611408000</GmtCreate>
                        <SearchStartTime>1568609597000</SearchStartTime>
                        <InstId>drdsxxxxxxxxxxx</InstId>
                        <RecallType>1</RecallType>
                        <TraceId></TraceId>
                        <DbName>drds_flashback</DbName>
                        <SqlType>Insert,Update,Delete</SqlType>
                        <Id>238</Id>
                        <ExpireTime>1569216270000</ExpireTime>
                        <SqlCounter>0</SqlCounter>
                        <RecallProgress>100</RecallProgress>
                        <DownloadUrl></DownloadUrl>
                  </SqlFlashbackTask>
            </SqlFlashbackTasks>
            <RequestId>11449CF1-6D32-4759-8F93-EAF36F176C41</RequestId>
            <Success>true</Success>
      </data>
      <requestId>11449CF1-6D32-4759-8F93-EAF36F176C41</requestId>
      <successResponse>true</successResponse>
</DescribeSqlFlashbakTaskResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"11449CF1-6D32-4759-8F93-EAF36F176C41",
    "data":{
        "RequestId":"11449CF1-6D32-4759-8F93-EAF36F176C41",
        "SqlFlashbackTasks":{
            "SqlFlashbackTask":[
                {
                    "SearchStartTime":1568609597000,
                    "DbName":"drds_flashback",
                    "RecallStatus":2,
                    "InstId":"drdsxxxxxxxxxx",
                    "SqlType":"Insert,Update,Delete",
                    "SqlPk":"",
                    "RecallProgress":100,
                    "GmtCreate":1568611408000,
                    "GmtModified":1568611469000,
                    "RecallRestoreType":0,
                    "ExpireTime":1569216270000,
                    "DownloadUrl":"",
                    "TraceId":"",
                    "Id":238,
                    "TableName":"drds_params",
                    "SqlCounter":0,
                    "SearchEndTime":1568611397000,
                    "RecallType":1
                }
            ]
        },
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.37. DescribeTable

Queries the table schema of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTable	The operation that you want to perform. Set the value to DescribeTable.

Parameter	Type	Required	Example	Description
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxx	The ID of the instance.
TableName	String	Yes	employee_split	The name of the table.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
List	-	-	The details about the table structure.
ColumnName	String	Id	The name of the column.
ColumnType	String	bigint(20)	The type of the column.
Extra	String	auto_increment	The extra information.
Index	String	PRI	The primary key.
IsAllowNull	String	NO	Indicates whether the column can be empty.
IsPk	String	YES	Indicates whether it is a primary key.
RequestId	String	5DC75BC2-3F3F-4FE5-8DC9-2A808B9AA401	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeTable
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeTableResponse>
      <code>200</code>
      <data>
            <RequestId>5DC75BC2-3F3F-4FE5-8DC9-2A808B9AA401</RequestId>
            <Data>
                  <List>
                        <ColumnName>Id</ColumnName>
                        <ColumnType>bigint(20)</ColumnType>
                        <Extra>auto_increment</Extra>
                        <IsAllowNull>NO</IsAllowNull>
                        <IsPk>YES</IsPk>
                        <Index>PRI</Index>
                  </List>
                  <List>
                        <ColumnName>Name</ColumnName>
                        <ColumnType>varchar(20)</ColumnType>
                        <Extra></Extra>
                        <IsAllowNull>NO</IsAllowNull>
                        <IsPk>NO</IsPk>
                        <Index></Index>
                  </List>
                  <List>
                        <ColumnName>Address</ColumnName>
                        <ColumnType>varchar(20)</ColumnType>
                        <Extra></Extra>
                        <IsAllowNull>NO</IsAllowNull>
                        <IsPk>NO</IsPk>
                        <Index></Index>
                  </List>
            </Data>
            <Success>true</Success>
      </data>
      <requestId>5DC75BC2-3F3F-4FE5-8DC9-2A808B9AA401</requestId>
      <successResponse>true</successResponse>
</DescribeTableResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"5DC75BC2-3F3F-4FE5-8DC9-2A808B9AA401",
    "data":{
        "Data":{
            "List":[
                {
                    "IsPk":"YES",
                    "Extra":"auto_increment",
                    "Index":"PRI",
                    "IsAllowNull":"NO",
                    "ColumnType":"bigint(20)",
                    "ColumnName":"Id"
                },
                {
                    "IsPk":"NO",
                    "Extra":"",
                    "Index":"",
                    "IsAllowNull":"NO",
                    "ColumnType":"varchar(20)",
                    "ColumnName":"Name"
                },
                {
                    "IsPk":"NO",
                    "Extra":"",
                    "Index":"",
                    "IsAllowNull":"NO",
                    "ColumnType":"varchar(20)",
                    "ColumnName":"Address"
                }
            ]
        },
        "RequestId":"5DC75BC2-3F3F-4FE5-8DC9-2A808B9AA401",
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.38. DescribeTableListByType

Queries type-specific tables of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTableListByType	The operation that you want to perform. Set the value to DescribeTableListByType.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
Query	String	Yes	drdsxxxxxxxxxxxx	The search field.
TableType	String	Yes	SINGLE	The type of the table.
CurrentPage	Integer	No	1	The page number of the current page.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
List	-	-	The list of returned tables.
Property	String	single	The property.
TableName	String	employee_split	The name of the table.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.

Parameter	Type	Example	Description
RequestId	String	B360F47B-59E3-4D1C-BA03-6BFB1C993F88	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.
Total	Integer	1	The total number of tables.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeTableListByType
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeTableListByTypeResponse>
      <code>200</code>
      <data>
            <PageSize>10</PageSize>
            <RequestId>B360F47B-59E3-4D1C-BA03-6BFB1C993F88</RequestId>
            <PageNumber>1</PageNumber>
            <Total>1</Total>
            <List>
                  <TableName>employee_split</TableName>
                  <Property>single</Property>
            </List>
            <Success>true</Success>
      </data>
      <requestId>B360F47B-59E3-4D1C-BA03-6BFB1C993F88</requestId>
      <successResponse>true</successResponse>
</DescribeTableListByTypeResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"B360F47B-59E3-4D1C-BA03-6BFB1C993F88",
    "data":{
        "PageNumber":1,
        "PageSize":10,
        "RequestId":"B360F47B-59E3-4D1C-BA03-6BFB1C993F88",
        "Success":true,
        "List":[
            {
                "TableName":"employee_split",
                "Property":"single"
            }
        ],
        "Total":1
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.39. DescribeTables

Queries the details about tables in a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTables	The operation that you want to perform. Set the value to DescribeTables.
DbName	String	Yes	drds_db	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
Query	String	Yes	drdsxxxxxxxxxxx	The query criteria.
CurrentPage	Integer	No	1	The page number of the current page.
PageSize	Integer	No	10	The number of entries to return on each page.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
List	-	-	The list of returned objects.
Broadcast	Boolean	false	Indicates whether the table is a broadcast table.
DbInstType	Integer	0	The type of the database instance.
IsLocked	Boolean	false	Indicates whether the table was locked.
IsShard	Boolean	false	Indicates whether the table was partitioned.
ShardKey	String	null	The shard key of the table.
Table	String	employee_split	The name of the table.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	83AC3D7E-461C-4D87-8ACD-6CC295178C6F	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.
Total	Integer	1	The total number of tables.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeTables
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeTablesResponse>
      <code>200</code>
      <data>
            <PageSize>40</PageSize>
            <RequestId>83AC3D7E-461C-4D87-8ACD-6CC295178C6F</RequestId>
            <PageNumber>1</PageNumber>
            <Total>2</Total>
            <List>
                  <DbInstType>0</DbInstType>
                  <IsShard>false</IsShard>
                  <Table>employee_split</Table>
                  <Broadcast>false</Broadcast>
                  <ShardKey>null</ShardKey>
                  <IsLocked>false</IsLocked>
                  <AllowFullTableScan>false</AllowFullTableScan>
            </List>
            <List>
                  <DbInstType>0</DbInstType>
                  <IsShard>true</IsShard>
                  <Table>employee_split2</Table>
                  <Broadcast>false</Broadcast>
                  <ShardKey>["id"]</ShardKey>
                  <IsLocked>false</IsLocked>
                  <AllowFullTableScan>true</AllowFullTableScan>
            </List>
            <Success>true</Success>
      </data>
      <requestId>83AC3D7E-461C-4D87-8ACD-6CC295178C6F</requestId>
      <successResponse>true</successResponse>
</DescribeTablesResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"83AC3D7E-461C-4D87-8ACD-6CC295178C6F",
    "data":{
        "PageNumber":1,
        "PageSize":40,
        "RequestId":"83AC3D7E-461C-4D87-8ACD-6CC295178C6F",
        "Success":true,
        "List":[
            {
                "IsLocked":false,
                "IsShard":false,
                "ShardKey":"null",
                "Broadcast":false,
                "Table":"employee_split",
                "DbInstType":0,
                "AllowFullTableScan":false
            },
            {
                "IsLocked":false,
                "IsShard":true,
                "ShardKey":"[\"id\"]",
                "Broadcast":false,
                "Table":"employee_split2",
                "DbInstType":0,
                "AllowFullTableScan":true
            }
        ],
        "Total":2
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.40. DisableSqlAudit

Disables SQL audit for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DisableSqlAudit	The operation that you want to perform. Set the value to DisableSqlAudit.

Parameter	Type	Required	Example	Description
DbName	String	Yes	drds_db	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	*****	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Result	Boolean	true	Indicates whether SQL audit was disabled for the PolarDB-X database.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DisableSqlAudit
&<Common request parameters>
```

Sample success responses

XML format

```
<DisableSqlAuditResponse>
      <code>200</code>
      <data>
            <RequestId>5F72CB0C-7A49-458E-AAC7-F53BCDAACEEF</RequestId>
            <Success>true</Success>
            <Result>true</Result>
      </data>
      <requestId>5F72CB0C-7A49-458E-AAC7-F53BCDAACEEF</requestId>
      <successResponse>true</successResponse>
</DisableSqlAuditResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"5F72CB0C-7A49-458E-AAC7-F53BCDAACEEF",
    "data":{
        "Result":true,
        "RequestId":"5F72CB0C-7A49-458E-AAC7-F53BCDAACEEF",
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.41. ModifyAccountPrivilege

Modifies account permissions for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	mytest@%	The name of the account.
Action	String	Yes	ModifyAccountPrivilege	The operation that you want to perform. Set the value to ModifyAccountPrivilege.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	2zAEvsxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
DbPrivilege.N.DbName	String	No	ddltest	The name of the PolarDB-X database whose permissions will be changed.
DbPrivilege.N.Privilege	String	No	RW	The database permissions that the account has.

Response parameters

Parameter	Type	Example	Description
RequestId	String	40E313AD-3B7C-4E34-B3BF-58AD0174D638	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyAccountPrivilege
&AccountName=mytest@%
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ModifyAccountPrivilegeResponse>
      <RequestId>40E313AD-3B7C-4E34-B3BF-58AD0174D638</RequestId>
      <Success>true</Success>
</ModifyAccountPrivilegeResponse>
```

JSON format

```
{
    "RequestId":"40E313AD-3B7C-4E34-B3BF-58AD0174D638",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.42. ModifyDrdsIpWhiteList

Modifies the IP address whitelist of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDrdsIpWhiteList	The operation that you want to perform. Set the value to ModifyDrdsIpWhiteList.

Parameter	Type	Required	Example	Description
DbName	String	Yes	test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the PolarDB-X instance.
IpWhiteList	String	Yes	127.xx.xx.1,10.xx.xx.1	The IP address whitelist after modification. **Note** Use commas (,) to separate multiple IP addresses.
AccessKeyId	String	No	LTAIxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
GroupAttribute	String	No	Group 1	The attribute of an IP address group in the whitelist.
GroupName	String	No	drds_group	The name of an IP address group in the whitelist.
Mode	Boolean	No	false	• The modification mode. Valid values: true: appending • false: overwriting

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyDrdsIpWhiteList
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxxx
&IpWhiteList=127.xx.xx.1,10.xx.xx.1
&<Common request parameters>
```

Sample success responses

JSON format

```
{
    "successResponse":true,
    "requestId":"CAC59657-4B81-478E-BB68-6C8FF8FFDF22",
    "data":{
        "RequestId":"CAC59657-4B81-478E-BB68-6C8FF8FFDF22",
        "Success":true
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.43. ModifyRdsReadWeight

Modifies the read weights of ApsaraDB RDS for MySQL instances.

Request parameters

Parameter	Type	Required	Example	Description
DbName	String	Yes	db_test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
InstanceNames	String	Yes	rm-bp1xxxxxxxxxxxx,rm-bp1xxxxxxxxxxxx	The list of ApsaraDB RDS for MySQL instances. Use commas (,) to separate multiple RDS instances.
Weights	String	Yes	14,86	The weight of each ApsaraDB RDS for MySQL instance. Use commas (,) to separate multiple weights.
AccessKeyId	String	No	LTAI8Gxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyRdsReadWeight
&DbName=db_test
&DrdsInstanceId=drdsxxxxxxxxxx
&InstanceNames=rm-bp1qxxxxxxxxxx,rm-bp1xxxxxxxxxxx
&Weights=14,86
&<Common request parameters>
```

Sample success responses

XML format

```
<ModifyRdsReadWeightResponse>
      <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
      <Success>true</Success>
</ModifyRdsReadWeightResponse>
```

JSON format

```
{
    "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "Success":"true"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.44. PutStartBackup

Submits a data backup task for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PutStartBackup	The operation that you want to perform. Set the value to PutStartBackup.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	LTAI8Gxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
BackupDbNames	String	No	db_1, db_2	The names of the databases to be backed up. For database backups, you must specify the databases to be backed up. Use commas (,) to separate multiple database names.
BackupLevel	String	No	db	The level of the backup. Valid values: • instance • database

Parameter	Type	Required	Example	Description
BackupMode	String	No	phy	The mode of the backup. Valid values: • phy: the quick backup • logic: the consistent backup

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Result	String	success	Indicates whether the backup task was submitted.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=PutStartBackup
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

JSON format

```
{
    "successResponse":true,
    "requestId":"07D9CC74-2707-4234-BC5A-1F11AEB9AD7C",
    "data":{
        "Result":"success",
        "RequestId":"07D9CC74-2707-4234-BC5A-1F11AEB9AD7C",
        "Success":true
    },
    "code":"200"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.45. ReleaseHiStoreInstance

Releases a columnar storage instance, namely, a HiStore instance of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
HistoreInstanceId	String	Yes	hi-hbgxxxxxxxxx	The ID of the HiStore instance.
RegionId	String	No	cn-beijing	The region ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ReleaseHiStoreInstance
&DrdsInstanceId=drdsxxxxxxxxxx
&HistoreInstanceId=hi-hbgxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ReleaseHiStoreInstanceResponse>
      <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
      <Success>true</Success>
</ReleaseHiStoreInstanceResponse>
```

JSON format

```
{
    "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "Success":"true"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.46. RemoveBackupsSet

Removes a backup set from a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveBackupsSet	The operation that you want to perform. Set the value to RemoveBackupsSet.
BackupId	String	Yes	c778036f-d464-11e9-8d45-7370dca6206b	The ID of the backup set.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	LTAI8xxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Result	String	success	Indicates whether the backup set was removed.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveBackupsSet
&BackupId=c778036f-d464-11e9-8d45-7370dca6206b
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveBackupsSetResponse>
      <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
      <Success>true</Success>
</RemoveBackupsSetResponse>
```

JSON format

```
{
    "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "Success":"true"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.47. RemoveDrdsDbFailedRecord

Removes database creation failure records from a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveDrdsDbFailedRecord	The operation that you want to perform. Set the value to RemoveDrdsDbFailedRecord.
DbName	String	Yes	db_test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the PolarDB-X instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	LTAI8Gxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The ID of the request.
Result	Boolean	true	Indicates whether the database creation failure records were removed from the PolarDB-X instance.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveDrdsDbFailedRecord
&DbName=db_test
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveDrdsDbFailedRecordResponseponse>
      <code>200</code>
      <data>
            <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
            <Success>true</Success>
            <Result>true</Result>
      </data>
      <requestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</requestId>
      <successResponse>true</successResponse>
</RemoveDrdsDbFailedRecordResponseponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "data":{
        "Result":true,
        "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.48. RemoveRecycleBinTable

Removes tables from the recycle bin for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveRecycleBinTable	The operation that you want to perform. Set the value to RemoveRecycleBinTable.
DbName	String	Yes	my_drds_db	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
TableName	String	Yes	buy_order	The name of the logical table.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether tables were removed from the table recycle bin.

Parameter	Type	Example	Description
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveRecycleBinTable
&DbName=my_drds_db
&DrdsInstanceId=drdsxxxxxxxxxx
&TableName=buy_order
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveRecycleBinTableResponse>
      <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
      <Success>true</Success>
      <Data>true</Data>
</RemoveRecycleBinTableResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.49. ResetDrdsToRdsConnections

Resets the number of connections from the instance to ApsaraDB RDS for MySQL instances.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetDrdsToRdsConnections	The operation that you want to perform. Set the value to ResetDrdsToRdsConnections.
DbName	String	Yes	test_my_db	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	fab3xxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Result	String	true	Indicates whether the number of connections from the PolarDB-X instance to ApsaraDB RDS for MySQL instances was reset.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ResetDrdsToRdsConnections
&DbName=test_my_db
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ResetDrdsToRdsConnectionsResponse>
      <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
      <Success>true</Success>
      <Result>true</Result>
</ResetDrdsToRdsConnectionsResponse>
```

JSON format

```
{
    "Result":true,
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.50. SetupBroadcastTables

Configures a broadcast table for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetupBroadcastTables	The operation that you want to perform. Set the value to SetupBroadcastTables.
Active	Boolean	Yes	true	Specifies whether to turn on the broadcast table switch.
DbName	String	Yes	test_db	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
TableName.N	RepeatList	Yes	tb1	The name of the table.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SetupBroadcastTables
&Active=true
&DbName=test_db
&DrdsInstanceId=drdsxxxxxxxxxxxx
&TableName.1=tb1
&<Common request parameters>
```

Sample success responses

XML format

```
<SetupBroadcastTablesResponse>
        <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
        <Success>true</Success>
        <Data>true</Data>
</SetupBroadcastTablesResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.51. SetupRecycleBinStatus

Enables the table recycle bin for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetupRecycleBinStatus	The operation that you want to perform. Set the value to SetupRecycleBinStatus.
DbName	String	Yes	db1	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
StatusAction	String	Yes	enable	Specifies whether to enable the recycle bin. Valid values: • enable • disable
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	The returned results.
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SetupRecycleBinStatus
&DbName=db1
&DrdsInstanceId=drdsxxxxxxxxxxxx
&StatusAction=enable
&<Common request parameters>
```

Sample success responses

XML format

```
<SetupRecycleBinStatusResponse>
        <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
        <Success>true</Success>
        <Data>true</Data>
</SetupRecycleBinStatusResponse>
```

JSON format

```
{
    "Data":"true",
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.52. SetupTable

Enables full table scan for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetupTable	The operation that you want to perform. Set the value to SetupTable.
AllowFullTableScan	Boolean	Yes	true	Specifies whether to enable full table scan.
DbName	String	Yes	dbtest	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
TableName.N	RepeatList	Yes	tbtest	The name of the destination table.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether the full table scan was enabled.
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SetupTable
&AllowFullTableScan=true
&DbName=dbtest
&DrdsInstanceId=drdsxxxxxxxxx
&TableName.1=tbtest
&<Common request parameters>
```

Sample success responses

XML format

```
<SetupTableResponse>
        <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
        <Success>true</Success>
        <Data>true</Data>
</SetupTableResponse>
```

JSON format

```
{
    "Data":"true",
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.53. StartRestore

Starts a backup-based recovery task for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	StartRestore	The operation that you want to perform. Set the value to StartRestore.
DrdsInstanceId	String	Yes	drdsxxxxxxx	The ID of the instance.
AccessKeyId	String	No	sdj23xxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Parameter	Type	Required	Example	Description
PreferredBackupTime	String	No	2019-09-10 20:18:! 8	The point in time to which the PolarDB-X instance is restored. It is in the yyyy-MM-dd HH:mm:ss format.
BackupLevel	String	No	-	The backup level.
BackupMode	String	No	-	The backup mode.
BackupDbNames	String	No	test1,test2	The names of databases to be restored. Use commas (,) to separate multiple names. If you do not configure this parameter, all databases on the PolarDB-X instance are restored by default.
BackupId	String	No	23443	The ID of the backup set. If this parameter is left blank, databases are restored based on PreferredBackupTime by default.

Response parameters

Parameter	Type	Example	Description
RequestId	String	721C71DD-D3D0-4327-BFDD-67832698F55B	The ID of the request.
Result	String	success	Indicates whether the recovery task was successful. If success was returned, the recovery task was successful. If an error message was returned, the recovery task failed.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=StartRestore
&DrdsInstanceId=drds43dsaew1
&<Common request parameters>
```

Sample success responses

XML format

```
<StartRestoreResponse>
     <Result>success</Result>
     <RequestId>FE104D26-AC19-49B5-AC67-947F6915E07E</RequestId>
     <Success>true</Success>
</StartRestoreResponse>
```

JSON format

```
{
    "Result":"success",
    "RequestId":"721C71DD-D3D0-4327-BFDD-67832698F55B",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.54. SubmitCleanTask

Submits a cleanup task for smooth scale-out of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitCleanTask	The operation that you want to perform. Set the value to SubmitCleanTask.
DbName	String	Yes	test1	The name of the PolarDB-X database.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
ExpandType	String	Yes	smooth_expand	The scale-out type. Valid values: • smooth_expand: smooth scale-out. • hot_expand: hot-spot scale-out Note Apsara Stack Enterprise Edition does not support hot-spot scale-out.
JobId	String	Yes	123	The job ID of the smooth scale-out task. The value of this parameter is the same as that of the ParentJobId parameter.
ParentJobId	String	Yes	123	The ID of the smooth scale-out task. This parameter is returned when you send a request for the smooth scale-out task.
AccessKeyId	String	No	sejkxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitCleanTask
&DbName=test1
&DrdsInstanceId=drdsxxxxxxxxxx
&ExpandType=smooth_expand
&JobId=123
&ParentJobId=123
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitCleanTaskResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
</SubmitCleanTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.55. SubmitSmoothExpandPreCheck

Submits a precheck task for smooth scale-out of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitSmoothExpandPreCheck	The operation that you want to perform. Set the value to SubmitSmoothExpandPreCheck.
DbInstType	String	Yes	RDS	The type of the database instance. Set the value to ApsaraDB RDS for MySQL.

Parameter	Type	Required	Example	Description
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	sdjwxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Msg	String	true	Indicates whether the precheck task was submitted.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
TaskId	Long	2321	The ID of the precheck task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitSmoothExpandPreCheck
&DbInstType=RDS
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitSmoothExpandPreCheckResponse>
      <Msg>success</Msg>
      <RequestId>FE104D26-AC19-49B5-AC67-947F6915E07E</RequestId>
      <Success>true</Success>
      <TaskId>97358</TaskId>
</SubmitSmoothExpandPreCheckResponse>
```

JSON format

```
{
    "RequestId":"FE104D26-AC19-49B5-AC67-947F6915E07E",
    "Msg":"success",
    "TaskId":97358,
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.56. SubmitSmoothExpandPreCheckTask

Submits a precheck task for smooth scale-out of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitSmoothExpandPreCheckTask	The operation that you want to perform. Set the value to SubmitSmoothExpandPreCheckTask.
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	kswxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Msg	String	scucess	Indicates whether the precheck task was submitted.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
TaskId	Long	2321	The ID of the precheck task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitSmoothExpandPreCheckTask
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitSmoothExpandPreCheckTaskResponse>
      <Msg>success</Msg>
      <RequestId>FE104D26-AC19-49B5-AC67-947F6915E07E</RequestId>
      <Success>true</Success>
      <TaskId>97358</TaskId>
</SubmitSmoothExpandPreCheckTaskResponse>
```

JSON format

```
{
    "RequestId":"FE104D26-AC19-49B5-AC67-947F6915E07E",
    "Msg":"success",
    "TaskId":97358,
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.57. SubmitSmoothExpandTask

Submits a smooth scale-out task for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitSmoothExpandTask	The operation that you want to perform. Set the value to SubmitSmoothExpandTask.
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	swdxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
DbInstanceIsCreating	Boolean	No	true	Specifies whether the target ApsaraDB RDS for MySQL instance is created in the console.
RdsSuperInstances.N.AccountName	String	No	test_drds	The privileged account of the ApsaraDB RDS for MySQL instance.
RdsSuperInstances.N.Password	String	No	Test1234	The password of the privileged account of the ApsaraDB RDS for MySQL instance.
RdsSuperInstances.N.RdsName	String	No	rm-s34xxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance in privileged mode.
TransferTaskInfos.N.DbName	String	No	test_abds_0001	The name of the physical database shard to be migrated.
TransferTaskInfos.N.DstInstanceName	String	No	rm-s34xxxxxxxxx	The ID of the destination instance.
TransferTaskInfos.N.InstanceType	String	No	RDS	The type of the instance to be migrated. Set the value to ApsaraDB RDS for MySQL.
TransferTaskInfos.N.SrcInstanceName	String	No	rm-m23xxxxxxxxx	The ID of the instance to be migrated.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitSmoothExpandTask
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitSmoothExpandTaskResponse>
     <RequestId>DSSDF-SEWE-23ERW</RequestId>
     <success>true</success>
</SubmitSmoothExpandTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.58. SubmitSwitchTask

Submits a switchover task for smooth scale-out of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitSwitchTask	The operation that you want to perform. Set the value to SubmitSwitchTask.
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
ExpandType	String	Yes	smooth_expand	The scale-out type. Valid values: • smooth_expand: smooth scale-out. • hot_expand: hot-spot scale-out Note Apsara Stack does not support hot-spot scale-out.
JobId	String	Yes	123	The job ID of the smooth scale-out task. The value of this parameter is the same as that of the ParentJobId parameter.
ParentJobId	String	Yes	123	The parent job ID of the smooth scale-out task. The value of this parameter is the same as that of the JobId parameter.
AccessKeyId	String	No	sejkwxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitSwitchTask
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxx
&ExpandType=smooth_expand
&JobId=123
&ParentJobId=123
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitSwitchTaskResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
</SubmitSwitchTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.59. ValidateShardTask

Verifies whether a partitioning task of a PolarDB-X database is valid.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ValidateShardTask	The operation that you want to perform. Set the value to ValidateShardTask.
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxx	The ID of the instance.
SourceTableName	String	Yes	buyer	The name of the source table.
TargetTableName	String	Yes	buyer_new	The name of the destination table.

Parameter	Type	Required	Example	Description
TaskType	String	Yes	SINGLE_TO_SHARD	The type of the task. Valid values: • SINGLE_TO_SHARD: converts a single table to a table shard. • SHARD_TO_SINGLE: converts a table shard to a single table. • SHARD_TO_SHARD: converts a table shard to another table shard.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
List	-	-	The list of returned check results.
Item	String	same_schema	The details about a check item.
Result	Integer	0	The check result. Valid values: • 0: passed. • 1: failed.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ValidateShardTask
&DbName=test
&DrdsInstanceId=drds23dser21
&SourceTableName=buyer
&TargetTableName=buyer_new
&TaskType=SINGLE_TO_SHARD
&<Common request parameters>
```

Sample success responses

XML format

```
<ValidateShardTaskResponse>
     <List>
          <element>
               <Item>has_data</Item>
               <Result>0</Result>
          </element>
          <element>
               <item>same_schema</item>
               <result>0</result>
          </element>
          <element>
               <item>uk_in_source_table</item>
               <result>0</result>
          </element>
          <element>
               <item>uk_in_target_table</item>
               <result>0</result>
          </element>
     </List>
     <RequestId>DSSDF-SEWE-23ERW</RequestId>
     <success>true</success>
</ValidateShardTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "List":[
        {
            "Result":0,
            "Item":"has_data"
        },
        {
            "result":0,
            "item":"same_schema"
        },
        {
            "result":0,
            "item":"uk_in_source_table"
        },
        {
            "result":0,
            "item":"uk_in_target_table"
        }
    ],
    "success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.60. RemoveDrdsDb

Deletes a database from a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveDrdsDb	The operation that you want to perform. Set the value to RemoveDrdsDb.
DbName	String	Yes	db_test	The name of the database to be deleted.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance from which the database will be deleted.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	LTAI8xxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveDrdsDb
&DbName=db_test
&DrdsInstanceId=drds****c6vxxyzd
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveDrdsDbResponse>
      <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
      <Success>true</Success>
</RemoveDrdsDbResponse>
```

JSON format

```
{
    "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.2.61. RefreshDrdsAtomUrl

Refreshes the connection between the instance and the ApsaraDB RDS for MySQL instance whose network type is changed to ensure that the connection is smooth.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RefreshDrdsAtomUrl	The operation that you want to perform. Set the value to RefreshDrdsAtomUrl.
DbName	String	Yes	db_test	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	LTAI8xxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5D64DE5944A1E541E0CB908A	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Result	Boolean	true	Indicates whether the connection after refresh was smooth.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RefreshDrdsAtomUrl
&DbName=db_test
&DrdsInstanceId=drds****c6vxxyzd
&<Common request parameters>
```

Sample success responses

XML format

```
<RefreshDrdsAtomUrlResponse>
      <RequestId>B12FC174-D5CE-4A6E-83C1-0F8F864FF70A</RequestId>
      <Success>true</Success>
</RefreshDrdsAtomUrlResponse>
```

JSON format

```
{
    "RequestId":"B12FC174-D5CE-4A6E-83C1-0F8F864FF70A",
    "Success":"true"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3. Instance management

9.1.2.3.1. CreateInstanceAccount

Creates an account for a instance.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	drds_sample_account	The name of the account.
Action	String	Yes	CreateInstanceAccount	The operation that you want to perform. Set the value to CreateInstanceAccount.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
Password	String	Yes	password	The password of the account.
DbPrivilege.N.DbName	String	No	testdb	The name of the PolarDB-X database.
DbPrivilege.N.Privilege	String	No	RW	The access permissions that the account has on the PolarDB-X database.

Response parameters

Parameter	Type	Example	Description
RequestId	String	drds_sample_request_id	The ID of the request.
Success	Boolean	true	Indicates whether the account was created.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateInstanceAccount
&AccountName=drds_sample_account
&DrdsInstanceId=drdsxxxxxxxxxxxxx
&Password=password
&DbPrivilege=[{"DbName":"testdb", "Privilege":"RW"}]
&<Common request parameters>
```

Sample success responses

XML format

```
<CreateInstanceAccount>
      <RequestId>FF13E47D-4E38-4A5A-BA68-4E610EF35A25</RequestId>
      <Success>true</Success>
</CreateInstanceAccount>
```

JSON format

```
{
    "RequestId":"FF13E47D-4E38-4A5A-BA68-4E610EF35A25",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.2. DescribeDrdsDBs

Queries the details about databases on a instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsDBs	The operation that you want to perform. Set the value to DescribeDrdsDBs.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	DJKSJKF12831283	The AccessKey ID provided to you by Alibaba Cloud.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1.
PageSize	Integer	No	20	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data set.
Db	-	-	The details about a database.
CreateTime	String	1563773824000	The timestamp when the database was created.
DbInstType	String	RDS	The type of the database.
DbName	String	drds_test	The name of the database.
Mode	String	HORIZONTAL	The partition mode of the database.
Schema	String	drds_test_1563773871118kxqd	The partitioning configuration ID of the database.
Status	String	NORMAL	The status of the database.

Parameter	Type	Example	Description
PageNumber	String	1	The page number of the returned page.
PageSize	String	10	The number of entries returned on the page.
RequestId	String	006B7D19-8CDB-4AA6-AAE7-23C1075276E1	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Total	String	1	The total number of databases.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsDBs
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsDBs>
      <PageSize>10</PageSize>
      <RequestId>006B7D19-8CDB-4AA6-AAE7-23C1075276E1</RequestId>
      <PageNumber>1</PageNumber>
      <Total>1</Total>
      <Data>
            <Db>
                  <Status>NORMAL</Status>
                  <DbInstType>RDS</DbInstType>
                  <Schema>george_1563773871118kxqd</Schema>
                  <CreateTime>1563773824000</CreateTime>
                  <Mode>HORIZONTAL</Mode>
                  <DbName>george</DbName>
            </Db>
      </Data>
      <Success>true</Success>
</DescribeDrdsDBs>
```

JSON format

```
{
    "Data":{
        "Db":[
            {
                "Status":"NORMAL",
                "DbName":"george",
                "CreateTime":1563773824000,
                "Schema":"george_1563773871118kxqd",
                "DbInstType":"RDS",
                "Mode":"HORIZONTAL"
            }
        ]
    },
    "PageNumber":1,
    "PageSize":10,
    "RequestId":"006B7D19-8CDB-4AA6-AAE7-23C1075276E1",
    "Success":true,
    "Total":1
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.3. DescribeDrdsInstance

Queries the details about a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstance	The operation that you want to perform. Set the value to DescribeDrdsInstance.
DrdsInstanceId	String	Yes	drdssexxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	ASU678xxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The details about the instance.
CommodityCode	String	drdsPost	The commodity code.
CreateTime	Long	1568620311000	The timestamp when the PolarDB-X instance was created.
Description	String	drds_test	The description of the PolarDB-X instance.
DrdsInstanceId	String	drdsxxxxxxxxx	The ID of the PolarDB-X instance.
ExpireDate	Long	4724323200000	The timestamp when the PolarDB-X instance expires.
InstRole	String	MASTER	The role of the PolarDB-X instance. Valid values: • MASTER: the primary instance. • SLAVE: the analytic read-only instance. • SLAVE_FLOW: the concurrent read-only instance.
InstanceSeries	String	drds.sn2.4c16g	The instance type family.
InstanceSpec	String	drds.sn2.4c16g.8C32G	The specifications of the PolarDB-X instance.

Parameter	Type	Example	Description
Label	String	NORMAL	The label of the PolarDB-X instance. Valid values: • NORMAL: the normal instance. • HA: the high-availability instance. • VPC: the Virtual Private Cloud (VPC) instance. **Note** Apsara Stack does not support VPC instances.
MachineType	String	ecs	The type of the machine where the PolarDB-X instance is deployed. Set the value to ECS.
MasterInstanceId	String	drdsxxxxxxxxx	The ID of the primary instance. This parameter is returned only for read-only instances.
NetworkType	String	CLASSIC	The network type of the PolarDB-X instance. Valid values: • CLASSIC: the classic network. • VPC: the VPC network.
OrderInstanceId	String	drdsxxxxxxxxx	The ID of the purchased PolarDB-X instance.
ReadOnlyDBInstanceIds	-	drdsxxxxxxxxx	The list of read-only PolarDB-X instances.
ReadOnlyDBInstanceId	-	-	The details about of a read-only PolarDB-X instance.

Parameter	Type	Example	Description
RegionId	String	cn-hangzhou	The region of the PolarDB-X instance.
Status	String	RUN	The status of the PolarDB-X instance.
Type	String	PRIVATE	The type of the PolarDB-X instance. Valid values: • PRIVATE: the dedicated instance. • PUBLIC: the shared instance.
Version	Long	0	The version of the PolarDB-X instance. This parameter is empty.
VersionAction	String	Upgradeable	The available action for the PolarDB-X instance version.
Vips	-	-	The list of returned virtual IP addresses (VIPs).
Vip	-	-	The details about a VIP.
Dns	String	drdsxxxxxxxxx.drds.aliyuncs.com	The domain name bound to the VIP.
ExpireDays	Long	0	The number of days before the VIP expires.
Port	String	3306	The open port of the VIP.
Type	String	intranet	The type of the VIP. Valid values: • intranet • internet
VpcId	String	vpc-bpxxxxxxxxxxxy	The ID of the VPC network connected to the instance.
VswitchId	String	vsw-bpxxxxxxxxxxxxx96	The ID of the virtual switch (VSwitch).

Parameter	Type	Example	Description
VpcCloudInstanceId	String	drdsxxxxxxxxx	The ID of the PolarDB-X instance in the VPC cluster.
ZoneId	String	cn-hangzhou-e	The ID of the zone.
RequestId	String	B4F76641-BA45-4320-BE7C-9C62CFDAC9B2	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstance
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstance>
      <RequestId>B4F76641-BA45-4320-BE7C-9C62CFDAC9B2</RequestId>
      <Data>
            <Status>RUN</Status>
            <Description>drds_test</Description>
            <InstanceSpec>drds.sn2.4c16g.8C32G</InstanceSpec>
            <ZoneId>cn-hangzhou-e</ZoneId>
            <ExpireDate>4724323200000</ExpireDate>
            <CreateTime>1568620311000</CreateTime>
            <MachineType>ecs</MachineType>
            <Label>NORMAL</Label>
            <InstanceSeries>drds.sn2.4c16g</InstanceSeries>
            <VersionAction>Can_Be_Rolled_Back</VersionAction>
            <Type>PRIVATE</Type>
            <DrdsInstanceId>drdsxxxxxxxxx</DrdsInstanceId>
            <OrderInstanceId>drdsxxxxxxxxx</OrderInstanceId>
            <InstRole>MASTER</InstRole>
            <NetworkType>CLASSIC</NetworkType>
            <CommodityCode>drdsPost</CommodityCode>
            <RegionId>cn-hangzhou</RegionId>
            <Vips>
                  <Vip>
                        <Type>intranet</Type>
                        <VpcId></VpcId>
                        <Port>3306</Port>
                        <Dns>drdsxxxxxxxxx.drds.aliyuncs.com</Dns>
                  </Vip>
            </Vips>
      </Data>
      <Success>true</Success>
</DescribeDrdsInstance>
```

JSON format

```
{
    "Data":{
        "MachineType":"ecs",
        "Description":"drds_test",
        "OrderInstanceId":"drdsxxxxxxxxx",
        "Type":"PRIVATE",
        "ZoneId":"cn-hangzhou-e",
        "InstRole":"MASTER",
        "NetworkType":"CLASSIC",
        "Status":"RUN",
        "ExpireDate":4724323200000,
        "Vips":{
            "Vip":[
                {
                    "Dns":"drdsxxxxxxxxx.drds.aliyuncs.com",
                    "Port":3306,
                    "Type":"intranet",
                    "VpcId":""
                }
            ]
        },
        "VersionAction":"Can_Be_Rolled_Back",
        "RegionId":"cn-hangzhou",
        "CommodityCode":"drdsPost",
        "InstanceSpec":"drds.sn2.4c16g.8C32G",
        "CreateTime":1568620311000,
        "InstanceSeries":"drds.sn2.4c16g",
        "Label":"NORMAL",
        "DrdsInstanceId":"drdsxxxxxxxxx"
    },
    "RequestId":"B4F76641-BA45-4320-BE7C-9C62CFDAC9B2",
    "Success":true
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.4. DescribeDrdsInstanceLevelTasks

Queries incomplete tasks for a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstanceLevelTasks	The operation that you want to perform. Set the value to DescribeDrdsInstanceLevelTasks.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU67xxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Tasks	-	-	The list of returned incomplete tasks.
Task	-	-	The details about an incomplete task.
AllowCancel	Boolean	false	Indicates whether the task can be canceled.
ErrMsg	String	The status of the instance is abnormal.	The error message of the task.
GmtCreate	Long	1568705520000	The timestamp when the task was created.
Progress	Integer	99	The task progress. Valid values: 0 to 100.
ProgressDescription	String	Executing	The description of the task execution progress.
ShowProgress	Boolean	true	Indicates whether the progress was displayed.
TaskName	String	upgrade_instance	The name of the task.
TaskPhase	String	1	The phase of the task.

Parameter	Type	Example	Description
TaskStatus	Integer	0	The status of the task. Valid values: • 0: executing • 1: successful • 2: failed • 3: canceled
TaskType	Integer	11	The type of the task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstanceLevelTasks
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstanceLevelTasks>
      <Tasks>
            <Task>
                  <AllowCancel>false</AllowCancel>
                  <GmtCreate>1568696422000</GmtCreate>
                  <Progress>90</Progress>
                  <ShowProgress>true</ShowProgress>
                  <TargetId>154</TargetId>
                  <TaskDetail></TaskDetail>
                  <ProgressDescription>Executing</ProgressDescription>
                  <TaskName>Upgrade task</TaskName>
                  <TaskPhase>1</TaskPhase>
                  <TaskStatus>0</TaskStatus>
                  <TaskType>11</TaskType>
                  <ErrMsg></ErrMsg>
            </Task>
      </Tasks>
      <RequestId>1BEEBC05-437E-456D-94A4-CEE1F5676BCF</RequestId>
      <Success>true</Success>
</DescribeDrdsInstanceLevelTasks>
```

JSON format

```
{
    "RequestId":"1BEEBC05-437E-456D-94A4-CEE1F5676BCF",
    "Tasks":{
        "Task":[
            {
                "ShowProgress":true,
                "TaskPhase":1,
                "TaskDetail":"",
                "ErrMsg":"",
                "TaskStatus":0,
                "TaskType":11,
                "TaskName":"Upgrade task",
                "GmtCreate":1568696422000,
                "AllowCancel":false,
                "ProgressDescription":"Executing",
                "TargetId":154,
                "Progress":90
            }
        ]
    },
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.5. DescribeDrdsInstanceMonitor

Queries the monitoring data of a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstanceMonitor	The operation that you want to perform. Set the value to DescribeDrdsInstanceMonitor.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
EndTime	Long	Yes	1568705520000	The timestamp that specifies the end of the time range to query.
Key	String	Yes	cpu	The monitoring metric.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the PolarDB-X instance.
StartTime	Long	Yes	1568701920000	The timestamp that specifies the beginning of the time range to query.
AccessKeyId	String	No	ASU6xxxxxxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
PeriodMultiple	Integer	No	1	The multiple of the monitoring data period. By default, the monitoring data period is 5 minutes.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The list of returned monitoring data.
Key	String	cpu	The monitoring metric.
NodeNum	Integer	1	The number of the nodes.
Unit	String	%	The unit of the monitoring metric.
Values	-	-	The obtained values of the monitoring metric.
Date	Long	1568703720000	The timestamp when the value was obtained.
Value	String	1.00	The metric value.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstanceMonitor
&DrdsInstanceId=drdsxxxxxxxxxx
&EndTime=1568705520000
&Key=cpu
&RegionId=cn-hangzhou
&StartTime=1568701920000
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstanceMonitor>
      <RequestId>0EB04DD8-A3C8-4C40-A7DC-865BE490216B</RequestId>
      <Data>
            <NodeNum>1</NodeNum>
            <Values>
                  <Value>1.00</Value>
                  <Date>1568703720000</Date>
            </Values>
            <Values>
                  <Value>0.93</Value>
                  <Date>1568703780000</Date>
            </Values>
            <Values>
                  <Value>0.67</Value>
                  <Date>1568703840000</Date>
            </Values>
            <Unit>%</Unit>
            <Key>cpu</Key>
      </Data>
</DescribeDrdsInstanceMonitor>
```

JSON format

```
{
    "Data":[
        {
            "Values":[
                {
                    "Value":"1.00",
                    "Date":1568703720000
                },
                {
                    "Value":"0.93",
                    "Date":1568703780000
                },
                {
                    "Value":"0.67",
                    "Date":1568703840000
                }
            ],
            "Key":"cpu",
            "NodeNum":1,
            "Unit":"%"
        }
    ],
    "RequestId":"0EB04DD8-A3C8-4C40-A7DC-865BE490216B"
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.6. DescribeDrdsInstances

Queries instances that meet specific criteria in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstances	The operation that you want to perform. Set the value to DescribeDrdsInstances.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the PolarDB-X instance.
AccessKeyId	String	No	ASU678xxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
Description	String	No	drds_test	The description of the instance.
Expired	Boolean	No	false	Specifies whether the instance expires.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	20	The number of entries to return on each page.
Tag.N.Key	String	No	acs:newretail:domain	The key of the Nth tag.
Tag.N.Value	String	No	NEW_RETAIL	The value of the Nth tag.
Type	String	No	1	The type of the PolarDB-X instance. Valid values: • 0: the shared instance. • 1: the dedicated instance.

Response parameters

Parameter	Type	Example	Description
Instances	-	-	The list of returned PolarDB-X instances.
Instance	-	-	The details about a PolarDB-X instance.
CommodityCode	String	drdsPost	The commodity code.

Parameter	Type	Example	Description
CreateTime	Long	1568620311000	The timestamp when the PolarDB-X instance was created.
Description	String	drds_test	The description of the PolarDB-X instance.
DrdsInstanceId	String	drdsxxxxxxxxxx	The ID of the PolarDB-X instance.
ExpireDate	Long	4724323200000	The timestamp when the PolarDB-X instance expires.
InstRole	String	MASTER	The role of the PolarDB-X instance. • MASTER: the primary instance. • SLAVE: the analytic read-only instance. • SLAVE_FLOW: the concurrent read-only instance.
InstanceSeries	String	drds.sn2.4c16g	The instance type family.
InstanceSpec	String	drds.sn2.4c16g.8C32G	The specifications of the PolarDB-X instance.
Label	String	NORMAL	The label of the PolarDB-X instance. Valid values: • NORMAL: the normal instance. • HA: the high-availability instance. • VPC: the Virtual Private Cloud (VPC) instance.
MachineType	String	ecs	The type of machine where the PolarDB-X instance is deployed. Set the value to ECS.

Parameter	Type	Example	Description
MasterInstanceId	String	drdsxxxxxxxxxx	The ID of the primary instance. This parameter is only available for read-only instances.
NetworkType	String	CLASSIC	The network type of the PolarDB-X instance. Valid values: • CLASSIC: the classic network. • VPC: the VPC network. **Note** Apsara Stack does not support VPC networks.
OrderInstanceId	String	drdsxxxxxxxxxx	The ID of the created PolarDB-X instance.
ReadOnlyDBInstanceIds	-	drdsxxxxxxxxxx	The list of read-only PolarDB-X instances.
ReadOnlyDBInstanceId	-	-	The details about of a read-only PolarDB-X instance.
RegionId	String	cn-hangzhou	The region ID of the PolarDB-X instance.
Status	String	RUN	The status of the PolarDB-X instance.
Type	String	PRIVATE	The type of the PolarDB-X instance. Valid values: • PUBLIC: the shared instance. • PRIVATE: the dedicated instance.
Version	Long	0	The version of the PolarDB-X instance.
VersionAction	String	Upgradable	The available actions for the PolarDB-X instance version.

Parameter	Type	Example	Description
Vips	-	-	The list of returned virtual IP addresses (VIPs).
Vip	-	-	The details about a VIP.
IP	String	10.xx.xx.51	The IP address.
Port	String	3306	The open port of the VIP.
Type	String	intranet	The type of the VIP. Valid values: • intranet • internet
VpcId	String	vpc-bpxxxxxxxxxxxy	The ID of the VPC network connected to the instance.
VswitchId	String	vsw-bpxxxxxxxxxxxxx96	The ID of the virtual switch (VSwitch).
VpcCloudInstanceId	String	drdsxxxxxxxxxx	The ID of the instance in the VPC cluster.
VpcId	String	vpc-bpxxxxxxxxxxxy	The ID of the VPC network connected to the instance.
ZoneId	String	vsw-bpxxxxxxxxxxxxx96	The ID of the VSwitch.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	20	The number of entries returned on the page.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Total	Integer	1	The total number of PolarDB-X instances.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstances
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstances>
      <Instances>
            <Instance>
                  <Status>RUN</Status>
                  <Description>drds_test</Description>
                  <InstanceSpec>drds.sn2.4c16g.8C32G</InstanceSpec>
                  <ZoneId>cn-hangzhou-e</ZoneId>
                  <ExpireDate>4724323200000</ExpireDate>
                  <CreateTime>1568620311000</CreateTime>
                  <MachineType>ecs</MachineType>
                  <Label>NORMAL</Label>
                  <InstanceSeries>drds.sn2.4c16g</InstanceSeries>
                  <VersionAction>Upgradable</VersionAction>
                  <Type>PRIVATE</Type>
                  <VpcId></VpcId>
                  <DrdsInstanceId>drdsxxxxxxxxxx</DrdsInstanceId>
                  <OrderInstanceId>drdsxxxxxxxxxx</OrderInstanceId>
                  <InstRole>MASTER</InstRole>
                  <NetworkType>CLASSIC</NetworkType>
                  <CommodityCode>drdsPost</CommodityCode>
                  <RegionId>cn-hangzhou</RegionId>
                  <Vips></Vips>
            </Instance>
      </Instances>
      <PageSize>20</PageSize>
      <RequestId>8734773E-7B21-4A22-9106-CBD245F8AF7D</RequestId>
      <PageNumber>1</PageNumber>
      <Total>1</Total>
</DescribeDrdsInstances>
```

JSON format

```
{
    "PageNumber":1,
    "PageSize":20,
    "RequestId":"8734773E-7B21-4A22-9106-CBD245F8AF7D",
    "Instances":{
        "Instance":[
            {
                "MachineType":"ecs",
                "Description":"drds_test",
                "OrderInstanceId":"drdsxxxxxxxxxx",
                "Type":"PRIVATE",
                "ZoneId":"cn-hangzhou-e",
                "VpcId":"",
                "InstRole":"MASTER",
                "NetworkType":"CLASSIC",
                "Status":"RUN",
                "ExpireDate":4724323200000,
                "Vips":{
                    "Vip":[]
                },
                "VersionAction":"Upgradable",
                "RegionId":"cn-hangzhou",
                "CommodityCode":"drdsPost",
                "InstanceSpec":"drds.sn2.4c16g.8C32G",
                "CreateTime":1568620311000,
                "InstanceSeries":"drds.sn2.4c16g",
                "Label":"NORMAL",
                "DrdsInstanceId":"drdsxxxxxxxxx"
            }
        ]
    },
    "Total":1
}
```


Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.7. DescribeDrdsInstanceVersion

Queries the versions of a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsInstanceVersion	The operation that you want to perform. Set the value to DescribeDrdsInstanceVersion.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ASU6xxxxxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The version data of the instance.
InstanceVersion	String	5.3.12-15682777	The current version of the PolarDB-X instance.
NewestVersion	String	5.3.12-15682777	The latest version of the PolarDB-X instance.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsInstanceVersion
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsInstanceVersion>
      <RequestId>88AFEF28-DF04-4E21-9CE9-277D3C19E3CD</RequestId>
      <Data>
            <InstanceVersion>5.3.12-15682777</InstanceVersion>
            <NewestVersion>5.3.12-15682777</NewestVersion>
      </Data>
      <Success>true</Success>
</DescribeDrdsInstanceVersion>
```

JSON format

```
{
    "Data":{
        "InstanceVersion":"5.3.12-15682777",
        "NewestVersion":"5.3.12-15682777"
    },
    "RequestId":"88AFEF28-DF04-4E21-9CE9-277D3C19E3CD",
    "Success":true
}
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.8. DescribeDrdsParams

Queries the parameters of a instance or database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsParams	The operation that you want to perform. Set the value to DescribeDrdsParams.
DrdsInstanceId	String	Yes	DescribeDrdsParams	The ID of the instance.

Parameter	Type	Required	Example	Description
ParamLevel	String	Yes	INSTANCE	The parameter level. Valid values: • INSTANCE: the instance level. • DB: the database level.
DbName	String	No	drds_test	The name of the database.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
List	-	-	The details about the parameters that were queried.
DbName	String	drds_test	The name of the database.
NeedRestart	Boolean	true	Indicates whether to restart the database.
ParamDefaultValue	String	1000	The default value of the parameter.
ParamDesc	String	The slow SQL query threshold (unit: ms)	The description of the parameter.
ParamEnglishName	String	SLOW_SQL_TIME	The English name of the parameter.
ParamLevel	String	INSTANCE	The parameter level.
ParamName	String	SLOW_SQL_TIME	The name of the parameter.
ParamRanges	String	[1000-900000]	The value range of the parameter.
ParamType	String	CONFIG	The type of the parameter.
ParamValue	String	1000	The value of the parameter.

Parameter	Type	Example	Description
ParamVariableName	String	slowSqlTime	The name of the parameter variable.
RequestId	String	2F7F8080-9132-4279-85D0-B7E5C4305162	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsParams
&DrdsInstanceId=DescribeDrdsParams
&ParamLevel=INSTANCE
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeDrdsParams>
      <RequestId>29D7422F-24DD-42D8-A04E-EBCE4B4A416A</RequestId>
      <List>
            <ParamLevel>INSTANCE</ParamLevel>
            <ParamRanges>[1000-900000]</ParamRanges>
            <ParamVariableName>slowSqlTime</ParamVariableName>
            <ParamEnglishName>SLOW_SQL_TIME</ParamEnglishName>
            <NeedRestart>false</NeedRestart>
            <ParamValue>1000</ParamValue>
            <ParamDefaultValue>1000</ParamDefaultValue>
            <DbName></DbName>
            <UserVisible>true</UserVisible>
            <ParamName>SLOW_SQL_TIME</ParamName>
            <ParamType>CONFIG</ParamType>
            <ParamDesc>The slow SQL query threshold (unit: ms)</ParamDesc>
      </List>
      <List>
            <ParamLevel>INSTANCE</ParamLevel>
            <ParamRanges>[3600000-86400000]</ParamRanges>
            <ParamVariableName>idleTimeout</ParamVariableName>
            <ParamEnglishName>LOGIC_IDLE_TIMEOUT</ParamEnglishName>
            <NeedRestart>false</NeedRestart>
            <ParamValue>28800000</ParamValue>
            <ParamDefaultValue>28800000</ParamDefaultValue>
            <DbName></DbName>
            <UserVisible>true</UserVisible>
            <ParamName>LOGIC_IDLE_TIMEOUT</ParamName>
            <ParamType>CONFIG</ParamType>
            <ParamDesc>The idle timeout for the connection between applications and  (unit:
ms)</ParamDesc>
```

```
      </List>
      <List>
            <ParamLevel>INSTANCE</ParamLevel>
            <ParamRanges>[4194304-33554432]</ParamRanges>
            <ParamVariableName>maxAllowedPacket</ParamVariableName>
            <ParamEnglishName>MAX_ALLOWED_PACKET</ParamEnglishName>
            <NeedRestart>false</NeedRestart>
            <ParamValue>16777216</ParamValue>
            <ParamDefaultValue>16777216</ParamDefaultValue>
            <DbName></DbName>
            <UserVisible>true</UserVisible>
            <ParamName>MAX_ALLOWED_PACKET</ParamName>
            <ParamType>CONFIG</ParamType>
            <ParamDesc>The maximum network packet for the interaction between applications
and  (unit: byte).</ParamDesc>
      </List>
      <List>
            <ParamLevel>INSTANCE</ParamLevel>
            <ParamRanges>[1073741824-6442450944]</ParamRanges>
            <ParamVariableName>GLOBAL_MEMORY_LIMIT</ParamVariableName>
            <ParamEnglishName>GLOBAL_MEMORY_LIMIT</ParamEnglishName>
            <NeedRestart>false</NeedRestart>
            <ParamValue>2147483648</ParamValue>
            <ParamDefaultValue>2147483648</ParamDefaultValue>
            <DbName></DbName>
            <UserVisible>true</UserVisible>
            <ParamName>GLOBAL_MEMORY_LIMIT</ParamName>
            <ParamType>CONFIG</ParamType>
            <ParamDesc>The maximum size of the memory pool for a read-only instance. If the
memory usage on an instance exceeds the value, an error occurs and the query fails.</ParamD
esc>
      </List>
      <Success>true</Success>
</DescribeDrdsParams>
```

JSON format

```
{
    "RequestId":"29D7422F-24DD-42D8-A04E-EBCE4B4A416A",
    "Success":true,
    "List":[
        {
            "NeedRestart":false,
            "ParamEnglishName":"SLOW_SQL_TIME",
            "ParamDesc":"The slow SQL query threshold (unit: ms).",
            "ParamName":"SLOW_SQL_TIME",
            "DbName":"",
            "ParamValue":"1000",
            "ParamType":"CONFIG",
            "ParamLevel":"INSTANCE",
            "UserVisible":true,
            "ParamDefaultValue":"1000",
            "ParamVariableName":"slowSqlTime",
            "ParamRanges":"[1000-9000001"
```

```
        },
        {
            "NeedRestart":false,
            "ParamEnglishName":"LOGIC_IDLE_TIMEOUT",
            "ParamDesc":"The idle timeout for the connection between users and  (unit: ms).
",
            "ParamName":"LOGIC_IDLE_TIMEOUT",
            "DbName":"",
            "ParamValue":"28800000",
            "ParamType":"CONFIG",
            "ParamLevel":"INSTANCE",
            "UserVisible":true,
            "ParamDefaultValue":"28800000",
            "ParamVariableName":"idleTimeout",
            "ParamRanges":"[3600000-86400000]"
        },
        {
            "NeedRestart":false,
            "ParamEnglishName":"MAX_ALLOWED_PACKET",
            "ParamDesc":"The maximum network packet for the interaction between users and
(unit: byte).",
            "ParamName":"MAX_ALLOWED_PACKET",
            "DbName":"",
            "ParamValue":"16777216",
            "ParamType":"CONFIG",
            "ParamLevel":"INSTANCE",
            "UserVisible":true,
            "ParamDefaultValue":"16777216",
            "ParamVariableName":"maxAllowedPacket",
            "ParamRanges":"[4194304-33554432]"
        },
        {
            "NeedRestart":false,
            "ParamEnglishName":"GLOBAL_MEMORY_LIMIT",
            "ParamDesc":"The maximum size of the memory pool for a read-only instance. If t
he memory usage on an instance exceeds the value, an error occurs and the query fails.",
            "ParamName":"GLOBAL_MEMORY_LIMIT",
            "DbName":"",
            "ParamValue":"2147483648",
            "ParamType":"CONFIG",
            "ParamLevel":"INSTANCE",
            "UserVisible":true,
            "ParamDefaultValue":"2147483648",
            "ParamVariableName":"GLOBAL_MEMORY_LIMIT",
            "ParamRanges":"[1073741824-6442450944]"
        }
    ]
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.9. DescribeDrdsTasks

Queries the change tasks of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDrdsTasks	The operation that you want to perform. Set the value to DescribeDrdsTasks.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.
DbName	String	No	test	The name of the PolarDB-X database.
TaskType	String	No	test	The type of the task.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CD412DF7-F21D-44CE-88FF-ED24917174A8	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
Tasks	-	-	The list of returned tasks.
Task	-	-	The details about a task.
Content	String	upgrade_instance	The content of the task.
Id	Long	64148	The ID of the task.
State	String	FAILED	The status of the task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeDrdsTasks
&<Common request parameters>
```

Sample success responses

```
<DescribeDrdsTasksResponse>
      <RequestId>CD412DF7-F21D-44CE-88FF-ED24917174A8</RequestId>
      <Tasks>
            <Task>
                  <State>FAILED</State>
                  <Id>64148</Id>
                  <Content>upgrade_instance</Content>
            </Task>
      </Tasks>
      <Success>true</Success>
</DescribeDrdsTasksResponse>
```

Error codes

HttpCode	Error code	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.10. DescribeHiStoreInstanceInfo

Queries the details about a HiStore instance of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeHiStoreInstanceInfo	The operation that you want to perform. Set the value to DescribeHiStoreInstanceInfo.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
HistoreInstanceId	String	Yes	hi-hbxxxxxxxxxxx	The ID of the HiStore instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
HiStoreInstanceInfo	-	-	The details about the HiStore instance.
RequestId	String	509BDE17-505A-4B3B-854D-30D3F092502F	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeHiStoreInstanceInfo
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeHiStoreInstanceInfoResponse>
      <RequestId>509BDE17-505A-4B3B-854D-30D3F092502F</RequestId>
          <HiStoreInstanceInfo>
                <DiskSize>100</DiskSize>
                <GmtCreate>1568267711</GmtCreate>
                <HistoreInstanceId>test</HistoreInstanceId>
                <MachineSpec>4C8G</MachineSpec>
                <RpmVersion>1.0.15</RpmVersion>
          </HiStoreInstanceInfo>
      <Success>true</Success>
</DescribeHiStoreInstanceInfoResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.11. DescribeInstanceAccounts

Queries the account information of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceAccounts	The operation that you want to perform. Set the value to DescribeInstanceAccounts.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	ABCxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
InstanceAccounts	-	-	The returned list of instance accounts.
InstanceAccount	-	-	The details about an instance account.
AccountName	String	drdsuser	The name of the account.
AccountType	Integer	1	The type of the account.
DbPrivileges	-	-	The database permissions that the account has.
DbPrivilege	-	-	The details about the database permission.
DbName	String	drdsdb	The name of the database.
Privilege	String	root	The permission.
Description	String	Permission	The description of the permission.
Host	String	%	The IP address of the instance.
RequestId	String	2D77B55F-50C4-4FC5-A89A-7746B7D5781D	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeInstanceAccounts
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeInstanceAccountsResponse>
      <InstanceAccounts>
            <InstanceAccount>
                  <Description>Created by DRDS</Description>
                  <DbPrivileges>
                        <DbPrivilege>
                              <DbName>drdsdb</DbName>
                              <Privilege>ROOT</Privilege>
                        </DbPrivilege>
                  </DbPrivileges>
                  <Host>%</Host>
                  <AccountName>drdsuser</AccountName>
                  <AccountType>0</AccountType>
            </InstanceAccount>
      </InstanceAccounts>
      <RequestId>2D77B55F-50C4-4FC5-A89A-7746B7D5781D</RequestId>
      <Success>true</Success>
</DescribeInstanceAccountsResponse>
```

Error codes

HttpCode	Error codes	Error message	Description
400	ActionUnauthorized	The specified action is not available for you	The error message returned because you are not authorized to perform this action. Perform RAM authorization first.

For a list of error codes, visit the API Error Center.

9.1.2.3.12. DescribeInstanceMenuSwitch

Queries the switch configuration of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstanceMenuSwitch	The operation that you want to perform. Set the value to DescribeInstanceMenuSwitch.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeInstanceMenuSwitch
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeInstanceMenuSwitchResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
      <Config>Config</Config>
</DescribeInstanceMenuSwitchResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.13. DescribeInstDbSlsInfo

Queries the names of the Log Service project and Logstore used by SQL audit.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInstDbSlsInfo	The operation that you want to perform. Set the value to DescribeInstDbSlsInfo.
DbName	String	Yes	drdsdb	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	test	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
AuditInfo	-	-	The SQL audit details.
LogStore	String	test1	The Logstore used by SQL audit.
Project	String	test2	The Log Service project used by SQL audit.
RequestId	String	DC3ABA3E-0F8A-4596-9104-F5155C34315B	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeInstDbSlsInfo
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeInstDbSlsInfoResponse>
      <AuditInfo>
            <LogStore>test</LogStore>
            <Project>test2</Project>
      </AuditInfo>
      <RequestId>DC3ABA3E-0F8A-4596-9104-F5155C34315B</RequestId>
      <Success>true</Success>
</DescribeInstDbSlsInfoResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.14. DescribePreCheckResult

Queries precheck results of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribePreCheckResult	The operation that you want to perform. Set the value to DescribePreCheckResult.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
TaskId	String	Yes	4561	The ID of the precheck task.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
PreCheckResult	-	-	The precheck result.
PreCheckName	String	Does a unique key exist	The name of the precheck task.
State	String	FAIL	The status of the precheck task.
SubCheckItems	-	-	The details about a precheck item.
ErrorMsgCode	String	1004	The error code.
ErrorMsgParams	-	table1	The error parameter.
PreCheckItemName	String	Unique key	The name of the precheck item.
State	String	SUCCESS	The status of the precheck item.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribePreCheckResult
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribePreCheckResultResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
      <PreCheckResult>
        <PreCheckName>Whether a unique key exists</PreCheckName>
        <State>FAIL</State>
        <SubCheckItems>
              <ErrorMsgCode>1004</ErrorMsgCode>
              <ErrorMsgParams>table1</ErrorMsgParams>
              <PreCheckItemName>Shard key</PreCheckItemName>
              <State>SUCCESS</State>
        </SubCheckItems>
      </PreCheckResult>
      <PreCheckResult></PreCheckResult>
</DescribePreCheckResultResponse>
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.15. DescribeStorageInstanceSubDbInfo

Queries the details about a storage instance of a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeStorageInstanceSubDbInfo	The operation that you want to perform. Set the value to DescribeStorageInstanceSubDbInfo.
DbName	String	Yes	drds_flashback	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
InstanceId	String	Yes	rm-bp1xxxxxxxxxxxxxx	The ID of the storage instance, namely, ApsaraDB RDS for MySQL instance.
AccessKeyId	String	No	******	The AccessKey ID provided to you by Alibaba Cloud.
InstType	String	No	null	The type of the instance. This parameter is currently unavailable.

Response parameters

Parameter	Type	Example	Description
Data	-	-	The returned data object.
Capacity	Long	194560	The capacity of the ApsaraDB RDS for MySQL instance.
RdsInstanceId	String	rm-bp1xxxxxxxxxxxxxx	The ID of the ApsaraDB RDS for MySQL instance.
SubDbList	-	-	The returned list of database shards.
SubDb	-	-	The details about a database shard.
SubDbName	String	drds_flashback_b8cd_0005	The name of the database shard.
Use	Long	0	Indicates whether the database shard was in use.
WarningLevel	Integer	0	The alert level.
TipsType	Integer	0	The type of the tip.
Use	Long	2293	The usage of the database shard.
WarningLevel	Integer	0	The alert level.

Parameter	Type	Example	Description
RequestId	String	78BA6289-5E03-4A31-8CB8-FC298DB63184	The unique ID of the request. If any problem occurs, provide this request ID for troubleshooting.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeStorageInstanceSubDbInfo
&<Common request parameters>
```

Sample success responses

XML format

```
<DescribeStorageInstanceSubDbInfoResponse>
      <code>200</code>
      <data>
            <RequestId>78BA6289-5E03-4A31-8CB8-FC298DB63184</RequestId>
            <Data>
                  <SubDbList>
                        <SubDb>
                              <WarningLevel>0</WarningLevel>
                              <Use>0</Use>
                              <SubDbName>drds_flashback_b8cd_0005</SubDbName>
                        </SubDb>
                        <SubDb>
                              <WarningLevel>0</WarningLevel>
                              <Use>0</Use>
                              <SubDbName>drds_flashback_b8cd_0004</SubDbName>
                        </SubDb>
                        <SubDb>
                              <WarningLevel>0</WarningLevel>
                              <Use>0</Use>
                              <SubDbName>drds_flashback_b8cd_0003</SubDbName>
                        </SubDb>
                        <SubDb>
                              <WarningLevel>0</WarningLevel>
                              <Use>0</Use>
                              <SubDbName>drds_flashback_b8cd_0002</SubDbName>
                        </SubDb>
                        <SubDb>
                              <WarningLevel>0</WarningLevel>
                              <Use>0</Use>
                              <SubDbName>drds_flashback_b8cd_0007</SubDbName>
                        </SubDb>
                        <SubDb>
```

```
                        <WarningLevel>0</WarningLevel>
                        <Use>0</Use>
                        <SubDbName>drds_flashback_b8cd_0006</SubDbName>
                    </SubDb>
                    <SubDb>
                        <WarningLevel>0</WarningLevel>
                        <Use>0</Use>
                        <SubDbName>drds_flashback_b8cd_0001</SubDbName>
                    </SubDb>
                    <SubDb>
                        <WarningLevel>0</WarningLevel>
                        <Use>0</Use>
                        <SubDbName>drds_flashback_b8cd_0000</SubDbName>
                    </SubDb>
                    <SubDb>
                        <WarningLevel>3</WarningLevel>
                        <Use>2293</Use>
                        <SubDbName>other data</SubDbName>
                    </SubDb>
                </SubDbList>
                <WarningLevel>0</WarningLevel>
                <Capacity>194560</Capacity>
                <Use>2293</Use>
                <TipsType>0</TipsType>
                <RdsInstanceId>rm-bp1xxxxxxxxxxxxxxx</RdsInstanceId>
            </Data>
            <Success>true</Success>
        </data>
        <requestId>78BA6289-5E03-4A31-8CB8-FC298DB63184</requestId>
        <successResponse>true</successResponse>
</DescribeStorageInstanceSubDbInfoResponse>
```

JSON format

```
{
    "successResponse":true,
    "requestId":"78BA6289-5E03-4A31-8CB8-FC298DB63184",
    "data":{
        "Data":{
            "WarningLevel":0,
            "TipsType":0,
            "RdsInstanceId":"rm-bp1xxxxxxxxxxxxxx",
            "SubDbList":{
                "SubDb":[
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0005",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0004",
                        "Use":0
                    },
```

```
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0003",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0002",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0007",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0006",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0001",
                        "Use":0
                    },
                    {
                        "WarningLevel":0,
                        "SubDbName":"drds_flashback_b8cd_0000",
                        "Use":0
                    },
                    {
                        "WarningLevel":3,
                        "SubDbName":"other data",
                        "Use":2293
                    }
                ]
            },
            "Capacity":194560,
            "Use":2293
        },
        "RequestId":"78BA6289-5E03-4A31-8CB8-FC298DB63184",
        "Success":true
    },
    "code":"200"
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.16. EnableSqlAudit

Enables SQL audit for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EnableSqlAudit	The operation that you want to perform. Set the value to EnableSqlAudit.
DbName	String	Yes	tpch_50g_4c32gx4	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	2zAEvxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
IsRecall	Boolean	No	true	Specifies whether to backtrack historical SQL statements for auditing.
RecallEndTimestamp	String	No	1568875132000	The end time of the backtracking.
RecallStartTimestamp	String	No	1568875132000	The start time of the backtracking.

Response parameters

Parameter	Type	Example	Description
RequestId	String	463A5F0F-12AD-4544-A902-B2B983CD2C11	The ID of the request.
Result	Boolean	true	Indicates whether SQL audit was enabled for the database. Valid values: • true: enabled. • false: failed.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=EnableSqlAudit
&DbName=tpch_50g_4c32gx4
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<EnableSqlAuditResponse>
      <Result>true</Result>
      <RequestId>463A5F0F-12AD-4544-A902-B2B983CD2C11</RequestId>
      <Success>true</Success>
</EnableSqlAuditResponse>
```

JSON format

```
{
    "Result":true,
    "RequestId":"463A5F0F-12AD-4544-A902-B2B983CD2C11",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.17. EnableSqlFlashbackMatchSwitch

Enables SQL flashback matching. After it is enabled, the query information is added to the ApsaraDB RDS for MySQL binary logs that are used by the database to precisely restore data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EnableSqlFlashbackMatchSwitch	The operation that you want to perform. Set the value to EnableSqlFlashbackMatchSwitch.
DbName	String	Yes	testdb	The name of the PolarDB-X database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the PolarDB-X instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	2zAEvsxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	463A5F0F-12AD-4544-A902-B2B983CD2C11	The ID of the request.
Result	Boolean	true	Indicates whether SQL flashback matching was enabled for the database. Valid values: • true: enabled. • false: failed.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=EnableSqlFlashbackMatchSwitch
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<EnableSqlFlashbackMatchSwitchResponse>
      <Result>true</Result>
      <RequestId>463A5F0F-12AD-4544-A902-B2B983CD2C11</RequestId>
      <Success>true</Success>
</EnableSqlFlashbackMatchSwitchResponse>
```

JSON format

```
{
    "Result":true,
    "RequestId":"463A5F0F-12AD-4544-A902-B2B983CD2C11",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.18. FlashbackRecycleBinTable

Restores a logical table in the recycle bin.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	FlashbackRecycleBinTable	The operation that you want to perform. Set the value to FlashbackRecycleBinTable.
DbName	String	Yes	testdb	The name of the database where the target table is located.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the PolarDB-X instance where the target table is located.
TableName	String	Yes	test	The name of the logical table to be restored.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether the restoration was enabled. Valid values: • true: enabled. • false: failed.
RequestId	String	463A5F0F-12AD-4544-A902-B2B983CD2C11	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=FlashbackRecycleBinTable
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxxxxxx
&TableName=test
&<Common request parameters>
```

Sample success responses

XML format

```
<FlashbackRecycleBinTableResponse>
      <Result>true</Result>
      <RequestId>463A5F0F-12AD-4544-A902-B2B983CD2C11</RequestId>
      <Success>true</Success>
</FlashbackRecycleBinTableResponse>
```

JSON format

```
{
    "Result":true,
    "RequestId":"463A5F0F-12AD-4544-A902-B2B983CD2C11",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.19. ModifyAccountDescription

Modifies the account description of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	testuser	The name of the account.
Action	String	Yes	ModifyAccountDescription	The operation that you want to perform. Set the value to ModifyAccountDescription.
Description	String	Yes	Created by	The description of the account.

Parameter	Type	Required	Example	Description
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the PolarDB-X instance.
AccessKeyId	String	No	2zAEvxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2F93CCD5-806F-4470-BBC7-20476AC48DC6	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyAccountDescription
&AccountName=testuser
&Description=Created by
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ModifyAccountDescriptionResponse>
      <RequestId>2F93CCD5-806F-4470-BBC7-20476AC48DC6</RequestId>
      <Success>true</Success>
</ModifyAccountDescriptionResponse>
```

JSON format

```
{
    "RequestId":"2F93CCD5-806F-4470-BBC7-20476AC48DC6",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.20. ModifyDrdsInstanceDescription

Modifies the description of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDrdsInstanceDescription	The operation that you want to perform. Set the value to ModifyDrdsInstanceDescription.
Description	String	Yes	Long occupied	The description of the PolarDB-X instance.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	2zAEvsxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C44CA24C-C7C4-4C0F-8AC9-1343F279B09C	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyDrdsInstanceDescription
&Description=Long occupied
&DrdsInstanceId=drdsxxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ModifyDrdsInstanceDescriptionResponse>
      <RequestId>C44CA24C-C7C4-4C0F-8AC9-1343F279B09C</RequestId>
      <Success>true</Success>
</ModifyDrdsInstanceDescriptionResponse>
```

JSON format

```
{
    "RequestId":"C44CA24C-C7C4-4C0F-8AC9-1343F279B09C",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.21. RemoveDrdsInstance

Releases a instance.

> **Note** You cannot release a PolarDB-X instance that is changing configuration or has associated databases.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveDrdsInstance	The operation that you want to perform. Set the value to RemoveDrdsInstance.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	f32safdxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveDrdsInstance
&DrdsInstanceId=drdsxxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveDrdsInstanceResponse>
      <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
      <Success>true</Success>
</RemoveDrdsInstanceResponse>
```

JSON format

```
{
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.22. RemoveInstanceAccount

Deletes the instance management account of a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	testaccount	The name of the account.
Action	String	Yes	RemoveInstanceAccount	The operation that you want to perform. Set the value to RemoveInstanceAccount.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	f3d13xxxxxxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the instance management account was deleted.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RemoveInstanceAccount
&AccountName=testaccount
&DrdsInstanceId=drdsxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RemoveInstanceAccountResponse>
      <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
      <Success>true</Success>
</RemoveInstanceAccountResponse>
```

JSON format

```
{
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.23. RestartDrdsInstance

Restarts a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RestartDrdsInstance	The operation that you want to perform. Set the value to RestartDrdsInstance.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
AccessKeyId	String	No	fds14xxxxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6F70CE62-5077-4B7B-95BC-4DAC45614DBE	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.
TaskId	Long	1	The ID of the task.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RestartDrdsInstance
&DrdsInstanceId=drdsxxxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RestartDrdsInstanceResponse>
      <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
      <Success>true</Success>
      <TaskId>1</TaskId>
</RestartDrdsInstanceResponse>
```

JSON format

```
{
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "TaskId":1,
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.24. RollbackInstanceVersion

Rolls back the version of a instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RollbackInstanceVersion	The operation that you want to perform. Set the value to RollbackInstanceVersion.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	String	true	Indicates whether the request was successful.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RollbackInstanceVersion
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<RollbackInstanceVersionResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Data>True</Data>
</RollbackInstanceVersionResponse>
```

JSON format

```
{
    "Data":"true",
    "RequestId":"DSSDF-SEWE-23ERW"
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.25. SetBackupPolicy

Configures a backup policy for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetBackupPolicy	The operation that you want to perform. Set the value to SetBackupPolicy.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
AccessKeyId	String	No	fafdsxxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.
BackupDbNames	String	No	db_test1,db_test2	The name of the database involved in the backup.
BackupLevel	String	No	db	The level of the backup. Valid values: • db: the database level. • instance: the instance level.
BackupLog	String	No	1	Specifies whether the backup log function is enabled. Valid values: • 1: enabled. • 0: disabled.
BackupMode	String	No	phy	The mode of the backup. Valid values: • logic: the logical backup. • phy: the physical backup.

Parameter	Type	Required	Example	Description
DataBackupRetentionPeriod	String	No	1	The retention period of the data backup. Unit: days.
LogBackupRetentionPeriod	String	No	1	The retention period of the data backup. Unit: days.
PreferredBackupEndTime	String	No	12:30:30	The end time of the backup.
PreferredBackupPeriod	String	No	0	The backup period. Valid values: • 0: Monday. • 1: Tuesday. • 2: Wednesday. • 3: Thursday. • 4: Friday. • 5: Saturday. • 6: Sunday.
PreferredBackupStartTime	String	No	11:30:30	The start time of the backup.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SetBackupPolicy
&DrdsInstanceId=drdsxxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<SetBackupPolicyResponse>
        <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
        <Success>true</Success>
        <Result>success</Result>
</SetBackupPolicyResponse>
```

JSON format

```
{
    "Result":"success",
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.26. SetupDrdsParams

Configures parameters for a instance or database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetupDrdsParams	The operation that you want to perform. Set the value to SetupDrdsParams.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxxx	The ID of the instance.
ParamLevel	String	Yes	DB	The parameter level. Valid values: • INSTANCE: the instance level. • DB: the database level.
Data.N.DbName	String	No	test_db	The name of the database corresponding to the parameter. The database name is valid only for database-level parameters.
Data.N.ParamRanges	String	No	[true|false]	The valid values of the parameter.

Parameter	Type	Required	Example	Description
Data.N.ParamType	String	No	ATOM	The type of the parameter. Valid values: • ATOM: the configuration item in the layer-3 data source. • CONFIG: the configuration item in ConfigServer. • DIAMOND: the configuration item in Diamond.
Data.N.ParamValue	String	No	true	The value of the parameter.
Data.N.ParamVariableName	String	No	FORBID_EXECUTE_DML_ALL	The name of the variable, which is specific to the program.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SetupDrdsParams
&DrdsInstanceId=drdsxxxxxxxxxxx
&ParamLevel=DB
&<Common request parameters>
```

Sample success responses

XML format

```
<SetupDrdsParamsResponse>
        <RequestId>A3140FC7-B78B-4D8E-B0C8-926D28669934</RequestId>
        <Success>true</Success>
        <Data>true</Data>
</SetupDrdsParamsResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"A3140FC7-B78B-4D8E-B0C8-926D28669934",
    "Success":true
}
```


Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.27. SubmitRollbackTask

Submits a smooth scale-out rollback task for a PolarDB-X database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitRollbackTask	The operation that you want to perform. Set the value to SubmitRollbackTask.
DbName	String	Yes	test	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
ExpandType	String	Yes	smooth_expand	The scale-out type. Valid values: • smooth_expand: smooth scale-out. • hot_expand: hot-spot scale-out **Note** The hot-spot scale-out is not supported.

Parameter	Type	Required	Example	Description
JobId	String	Yes	123	The job ID of the smooth scale-out task. The value of this parameter is the same as that of the ParentJobId parameter.
ParentJobId	String	Yes	123	The parent job ID of the smooth scale-out task. The value of this parameter is the same as that of the JobId parameter.
AccessKeyId	String	No	sejkwe21234sd	The AccessKey ID provided to you by Alibaba Cloud.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitRollbackTask
&DbName=test
&DrdsInstanceId=drdsxxxxxxxxxx
&ExpandType=smooth_expand
&JobId=123
&ParentJobId=123
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitRollbackTaskResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
</SubmitRollbackTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.28. SubmitSqlFlashbackTask

Submits an SQL flashback task for a PolarDB-X instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitSqlFlashbackTask	The operation that you want to perform. Set the value to SubmitSqlFlashbackTask.
DbName	String	Yes	testdb	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
EndTime	String	Yes	2019-09-10 23:23:23	The time when the SQL flashback task ends.
RecallRestoreType	Integer	Yes	0	Specifies whether to implement exact match or fuzzy match. Valid values: • 0: the exact match. • 1: the fuzzy match.
StartTime	String	Yes	2019-09-10 20:23:23	The time when the SQL flashback task starts.
AccessKeyId	String	No	Accexxxxxxxxxxx	The AccessKey ID provided to you by Alibaba Cloud.

Parameter	Type	Required	Example	Description
RecallType	Integer	No	0	Specifies whether to implement exact match or fuzzy match. Valid values: • 0: the exact match. • 1: the fuzzy match.
SqlPk	String	No	23423	The primary key of the flashback SQL statement.
SqlType	String	No	INSERT,UPDATE	The type of the SQL statement. Valid values: INSERT, UPDATE, and DELETE. Separate multiple values with comma (,).
TableName	String	No	tb1	The name of the table on which you want to perform SQL flashback.
TraceId	String	No	asenw3sa	The trace ID of the flashback SQL statement. You can query it in the SQL audit results.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SubmitSqlFlashbackTask
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxxx
&EndTime=2019-09-10 23:23:23
&RecallRestoreType=0
&StartTime=2019-09-10 20:23:23
&<Common request parameters>
```

Sample success responses

XML format

```
<SubmitSqlFlashbackTaskResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Success>True</Success>
      <TaskId>2323</TaskId>
</SubmitSqlFlashbackTaskResponse>
```

JSON format

```
{
    "RequestId":"DSSDF-SEWE-23ERW",
    "TaskId":2323,
    "Success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.29. SwitchGlobalBroadcastType

Switches the broadcast table in a PolarDB-X database from the multi-write mode to the asynchronous link mode.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SwitchGlobalBroadcastType	The operation that you want to perform. Set the value to SwitchGlobalBroadcastType.
DbName	String	Yes	testdb	The name of the database.
DrdsInstanceId	String	Yes	drdsxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
Data	Boolean	true	Indicates whether the broadcast table was switched from multi-write mode to asynchronous link mode.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.
Success	Boolean	true	Indicates whether the request was successful.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SwitchGlobalBroadcastType
&DbName=testdb
&DrdsInstanceId=drdsxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<ValidateShardTaskResponse>
     <RequestId>DSSDF-SEWE-23ERW</RequestId>
     <Success>true</Success>
     <Data>true</Data>
</ValidateShardTaskResponse>
```

JSON format

```
{
    "Data":true,
    "RequestId":"DSSDF-SEWE-23ERW",
    "success":true
}
```

Error codes

For a list of error codes, visit the API Error Center.

9.1.2.3.30. UpgradeInstanceVersion

Upgrades the version of the instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpgradeInstanceVersion	The operation that you want to perform. Set the value to UpgradeInstanceVersion.
DrdsInstanceId	String	Yes	drdsxxxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the PolarDB-X instance.

Response parameters

Parameter	Type	Example	Description
Data	String	true	Indicates whether the request was successful.
RequestId	String	DSSDF-SEWE-23ERW	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UpgradeInstanceVersion
&DrdsInstanceId=drdsxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

XML format

```
<UpgradeInstanceVersionResponse>
      <RequestId>DSSDF-SEWE-23ERW</RequestId>
      <Data>True</Data>
</UpgradeInstanceVersionResponse>
```

JSON format

```
{
    "Data":"true",
    "RequestId":"DSSDF-SEWE-23ERW"
}
```

Error codes

For a list of error codes, visit the API Error Center.

10.AnalyticDB for PostgreSQL

10.1. Developer Guide

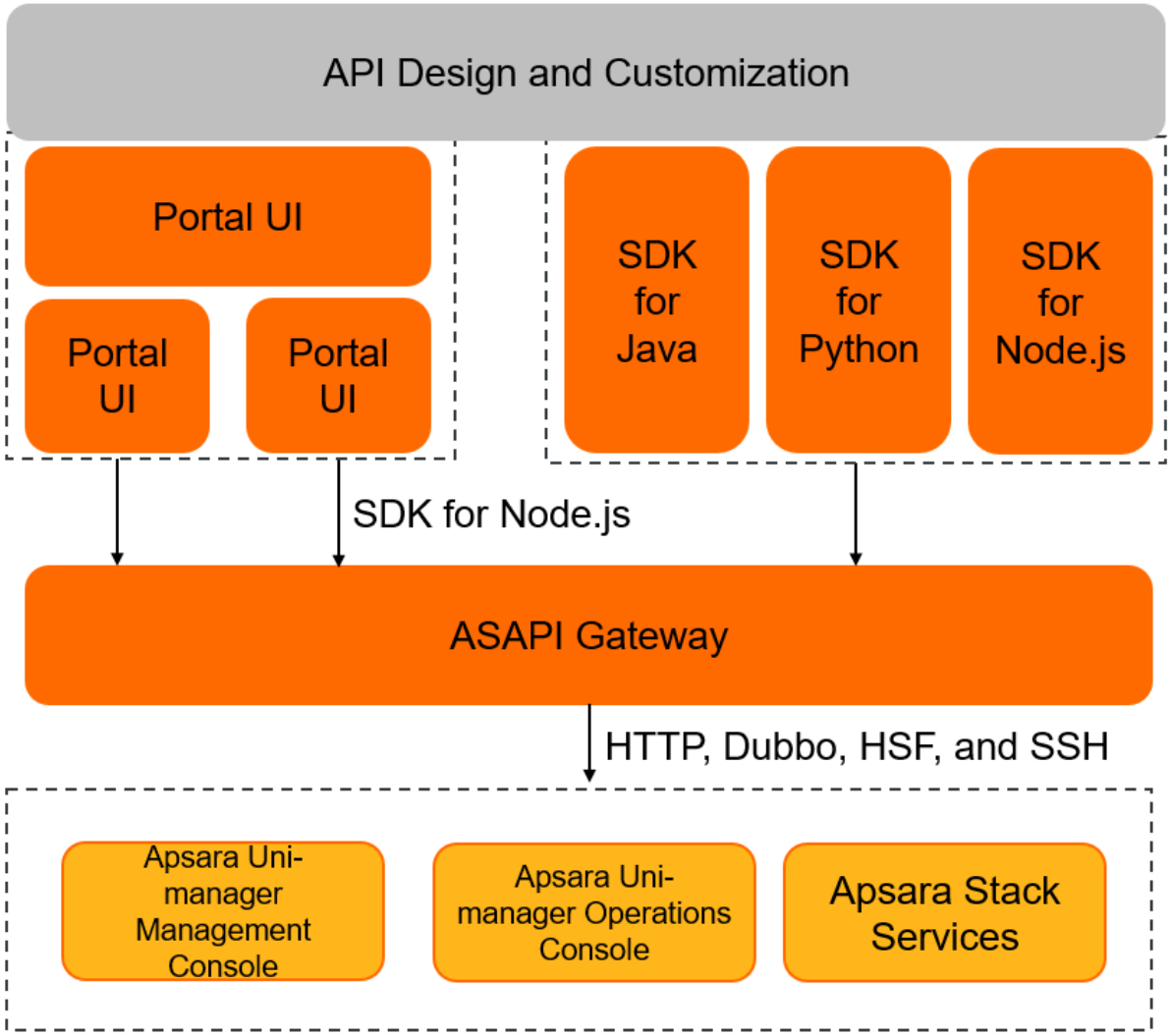
10.1.1. Call Apsara Stack SDK by using ASAPI

10.1.1.1. 文档标题缺失，请补全后重新导出

10.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

10.1.1.1.2. Preparations

10.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

10.1.1.1.2.2. View information about API operations

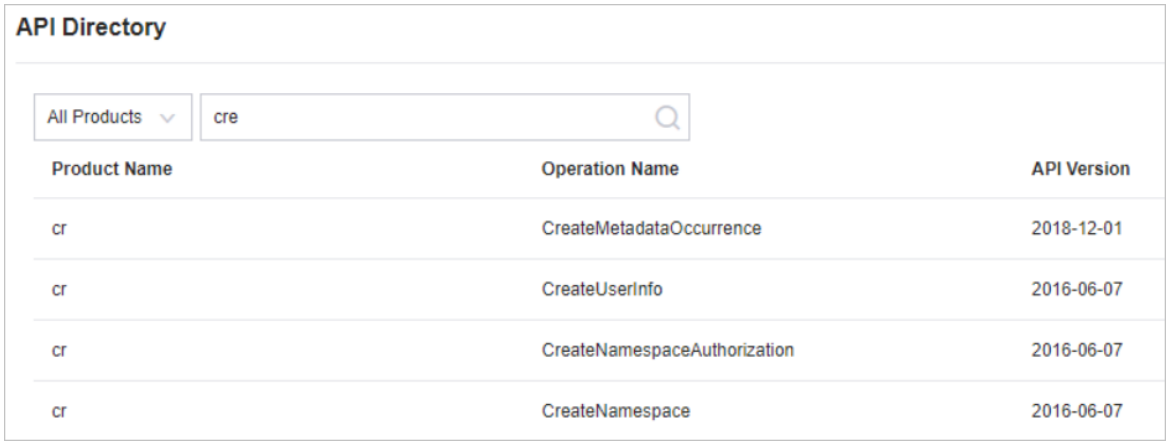
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



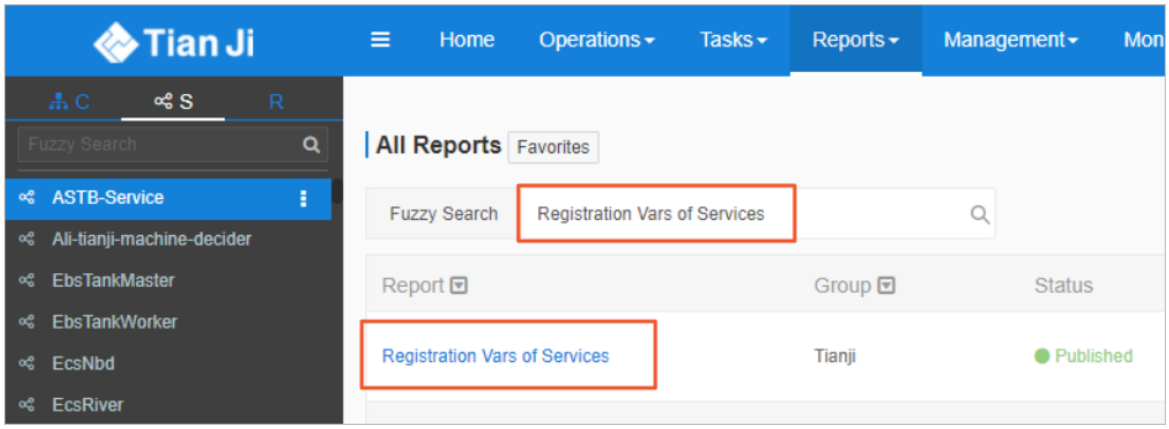
4. Then, you can view the service name, API operation name, and API operation version.

10.1.1.1.2.3. Generate an endpoint for the ASAPI

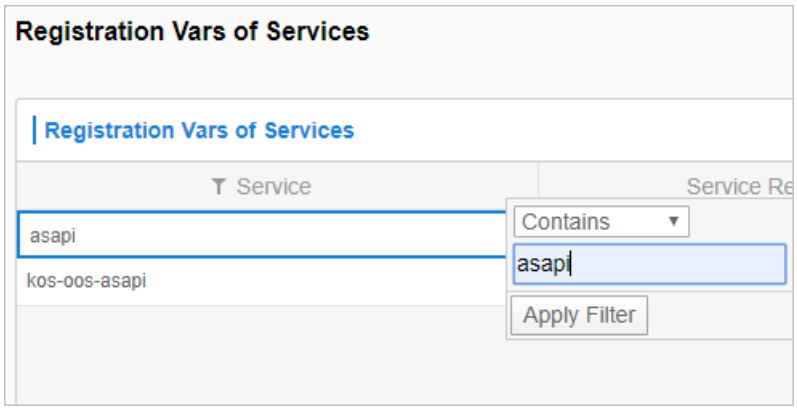
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

10.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

10.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

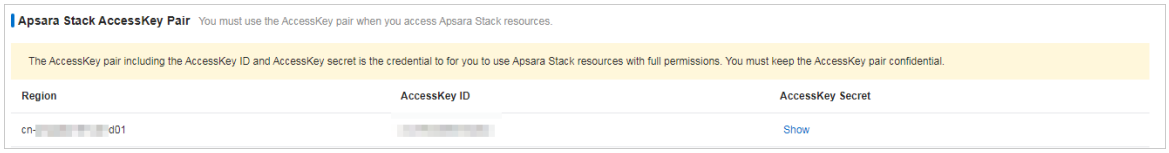
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

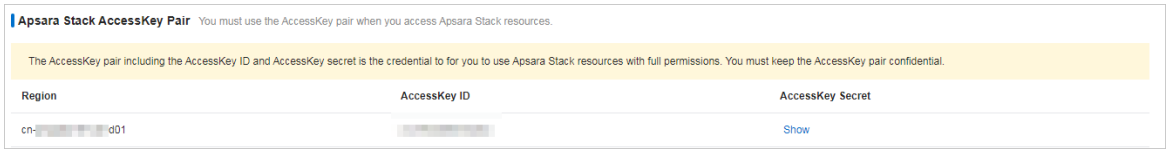
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

10.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



10.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

10.1.1.1.4. SDK description

10.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

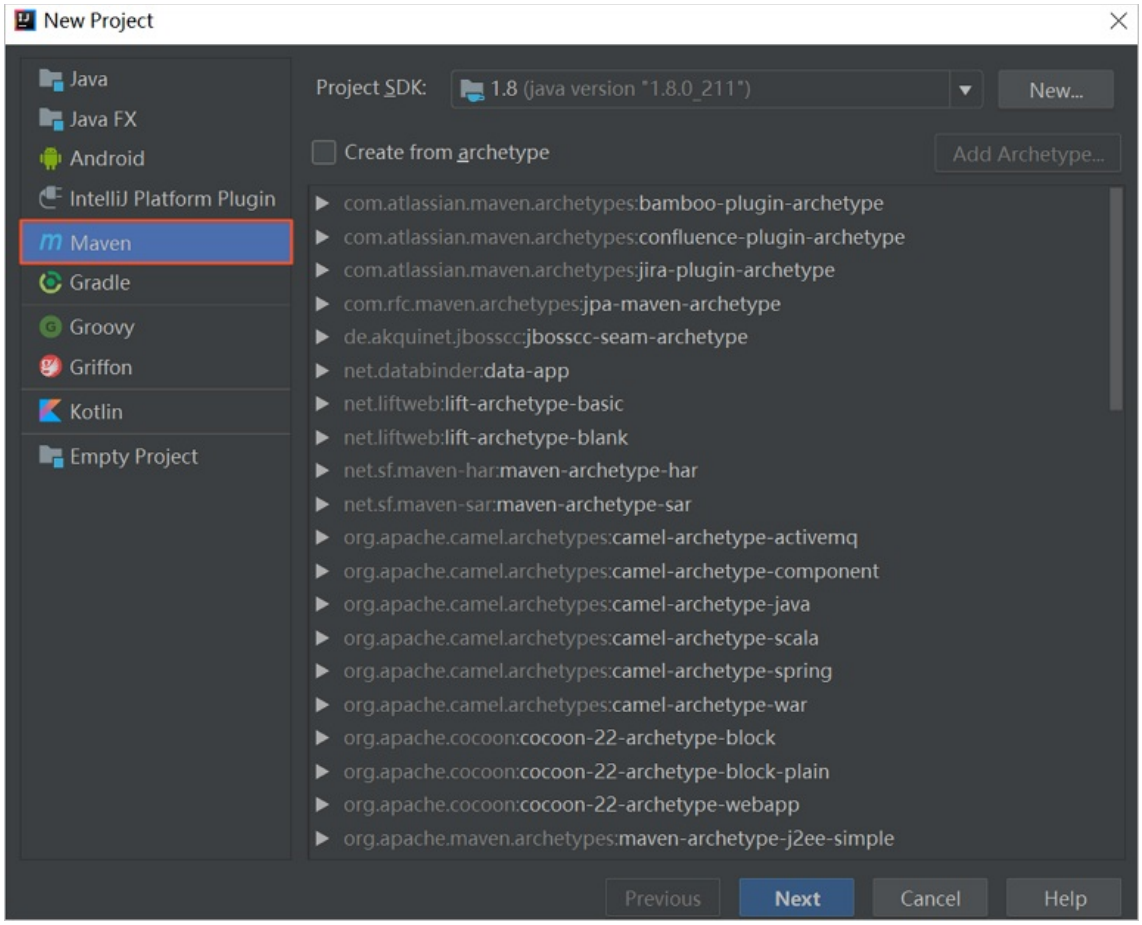
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

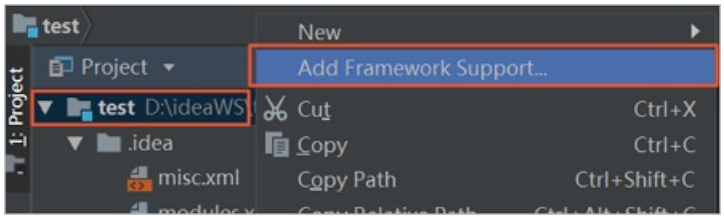
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

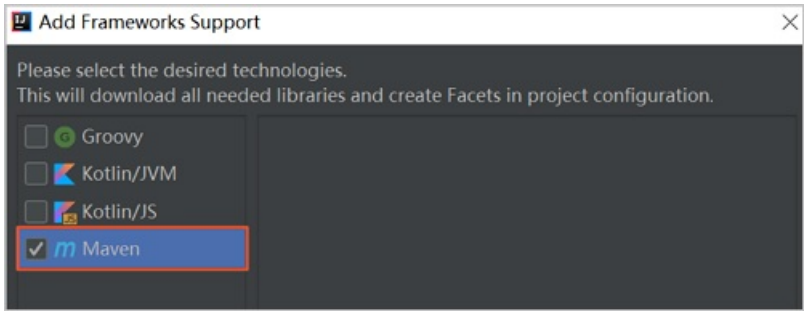
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



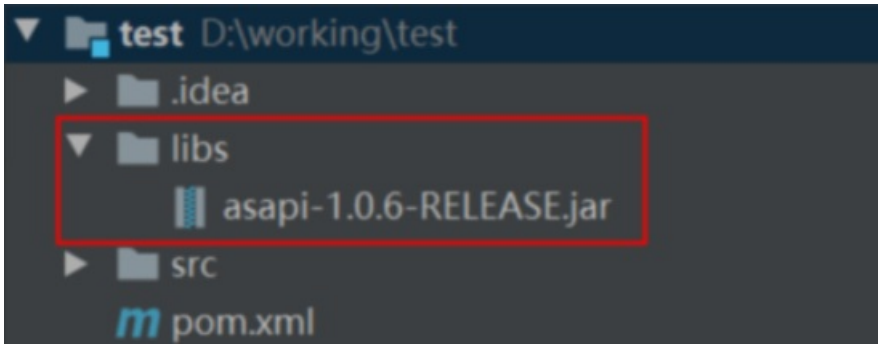
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



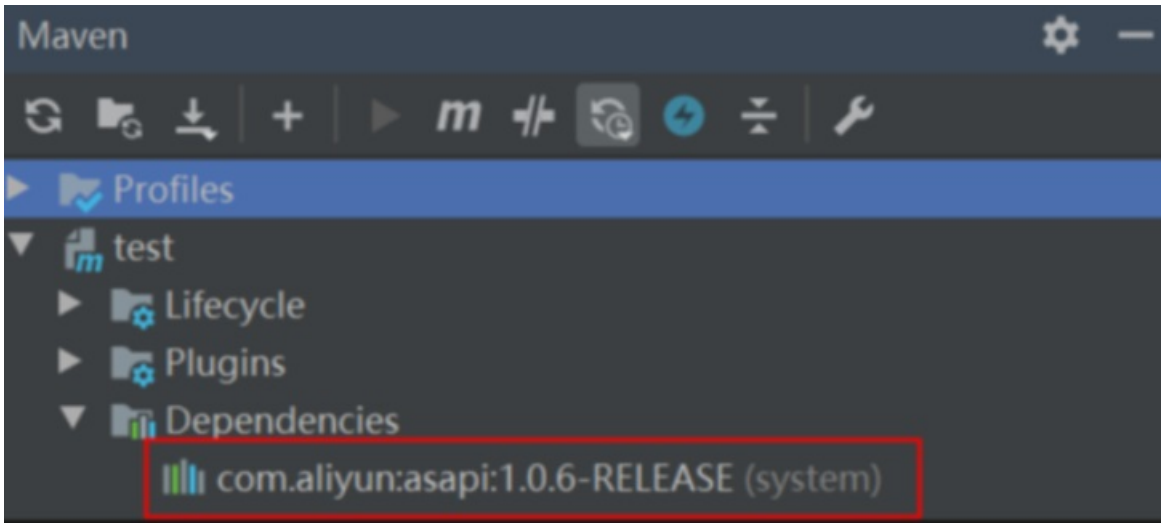
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

10.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

10.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

10.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

10.1.1.1.5. HTTP requests

10.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

10.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

10.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20`, asterisks (`*`) with `%2A`, and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign`. You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign`. In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

10.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

10.1.2. API reference

10.1.2.1. Request structure

To make an API call is to send an HTTP GET request to the API server with request parameters based on the description of the corresponding API operation. The processing results are returned in the response.

Endpoints

The endpoint of the AnalyticDB for PostgreSQL API is gpdb.example.com.

For more information about how to obtain the endpoint, see Generate the endpoint of ASAPI.

Protocols

You can send requests over HTTP or HTTPS. To ensure higher security, we recommend that you send operation requests over HTTPS. Some password-related operations only support HTTPS.

Methods

The system allows you to send HTTP GET requests. This requires request parameters to be included in the request URL.

Request parameters

When you make an API request, you must specify the Action parameter as the operation, such as CreateDBInstance, that you want to perform. You must also specify common request parameters and the request parameters specific to this operation.

Encoding

Requests and responses are encoded using the UTF-8 character set.

10.1.2.2. Common parameters

Common request parameters

Common request parameters must be included in all AnalyticDB for PostgreSQL API requests.

Sample common parameters

Parameter	Type	Required	Description
Format	String	No	The format in which to return the response. Valid values: JSON and XML. Default value: XML.
Version	String	Yes	The version number of the API. Specify the version in the YYYY-MM-DD format. The current version is 2018-07-23.
AccessKeyId	String	Yes	The AccessKey ID provided to you by Alibaba Cloud.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1.

Parameter	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard. The time must be in UTC. Specify the time in the following format: `YYYY-MM-DDThh:mm:ssZ` For example, 2013-08-15T12:00:00Z indicates 20:00:00 (UTC+8), August 15, 2013.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to 1.0.
SignatureNonce	String	Yes	A unique, random number that is used to prevent replay attacks. You must use different numbers for different requests.

Examples

```
https://gpdb.example.com/
?Format=xml
&Version=2013-08-15
&Signature=Pcxxxxxxxxxxxxxxxxxxxxx
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2013-06-01T12:00:00Z
```

Sample responses

Every response returns a unique RequestID regardless of whether the call is successful.

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<!—Result Root Node-->
<Interface Name+Response>
 <!—Return Request Tag-->
 <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
 <!—Return Result Data-->
</Interface Name+Response>
```

10.1.2.3. Responses

API responses use the HTTP response format where a 2xx status code indicates a successful call and a 4xx or 5xx status code indicates a failed call.

Responses can be returned in either the JSON or XML format. You can specify the response format in the request. The default response format is XML. The response examples in this topic are formatted with line breaks or indents for a clear view. Actual response data is not formatted in the same manner as these examples.

Sample success responses

XML format

The XML response includes a message that indicates whether the request is successful and the specific service data. Example:

```
<? xml version="1.0" encoding="utf-8"? >
<!-The root node of the result-->
<API name+Response>
    <!-The returned request tag-->
 <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <!-The response data-->
</API name+Response>
```

JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /* The response data */
}
```

Sample error responses

No result is returned after the API call fails. You can locate the cause of the error by referring to the error codes in Appendix.

When a request fails, an HTTP response containing an HTTP status code (4xx or 5xx) is returned. The returned message body contains the specific error code and error message. The message body also contains a globally unique RequestId and the HostId of the site you request to access. If you are unable to find the error cause, you can contact Alibaba Cloud customer service and provide the HostId and RequestId to help solve the problem as quickly as possible.

XML format

```
<? xml version="1.0" encoding="UTF-8"? >
<Error>
   <RequestId>8906582E-6722-409A-A6C4-0E7863B733A5</RequestId>
   <HostId>gpdb.example.com</HostId>
   <Code>UnsupportedOperation</Code>
   <Message>The specified action is not supported. </Message>
</Error>
```

JSON format

```
{
    "RequestId": "7463B73D-35CC-4D19-A010-6B8D65D242EF",
    "HostId": "gpdb.example.com",
    "Code": "UnsupportedOperation",
    "Message": "The specified action is not supported."
}
```

10.1.2.4. Request signatures

authenticates each access request. Requests must contain signature information regardless of whether it is sent over HTTP or HTTPS. implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID and AccessKey secret are issued to you by Alibaba Cloud. You can apply for and manage them on the Alibaba Cloud official website. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential.

For more information about how to obtain the AccessKey pair, see .

To sign a request, perform the following steps:

1. Create a canonicalized query string by using request parameters.
   i. Create a canonicalized query string by arranging the request parameters (including all common and operation-specific parameters except Signature) in alphabetical order.

      > **Note** If you use the GET method to send a request, the request parameters are included in the request URL.The request parameters in the URL are placed after a question mark (?) and separated by ampersands (&).

   ii. Encode the name and value of each request parameter. The parameter names and values must be URL-encoded in UTF-8 based on the following encoding rules:
      - Uppercase letters, lowercase letters, digits, and some special characters such as hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
      - Other characters must be percent encoded in the %XY format. XY represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as %22.
      - Extended UTF-8 characters are encoded in the %XY%ZA... format.
      - Spaces must be encoded as %20. Do not encode spaces as plus signs (+).

      > **Note** Most libraries that support URL encoding, such as java.net.URLEncoder, comply with the Multipurpose Internet Mail Extensions (MIME) encoding rules of "application/x-www-form-urlencoded". If this encoding method is used, replace the plus signs (+) in the encoded strings with %20, the asterisks (*) with %2A, and %7E with a tilde (~) to conform to the encoding rules.

   iii. Connect the encoded parameter names and values by using equal signs (=).
   iv. Sort the key-value pairs connected by equal signs (=) in alphabetical order and separate them with ampersands (&) to obtain the canonicalized query string.

2. Create a string-to-sign from the encoded canonicalized query string based on the following rules:

```
StringToSign= HTTPMethod + "&" + percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

HTTPMethod specifies an HTTP-style request such as GET.

percentEncode("/") specifies the encoded value of the character "/" based on the URL encoding rules described in Step 1.b. The encoded value is %2F.

percentEncode(CanonicalizedQueryString) specifies the encoded string of the canonicalized query string constructed in Step 1. The encoding follows the URL encoding rules described in Step 1.b.

3. As defined in RFC 2104, use the preceding string-to-sign to calculate the HMAC value of the signature.

> **Note** The key used for signature calculation is the combination of your AccessKey secret and an ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the HMAC value in Base64 to obtain the signature string.
5. Add the signature string to the request as the Signature parameter.

> **Note**
>
> The obtained signature string must be URL-encoded as defined by RFC 3986 like other parameters before it can be submitted to the AnalyticDB for PostgreSQL server as the final request parameter value. The following URL is the request URL without a signature for the DescribeDBInstances operation:
>
> ```
> http://gpdb.example.com/?Timestamp=2013-06-01T10:33:56Z&Format=XML&Acce ssKeyId=tes
> tid&Action=DescribeDBInstances&SignatureMethod=HMAC-SHA1&Regi onId=region1&Signatur
> eNonce=NwDAxvLU6tFE0DVb&Version=2014-08-15&Signatur eVersion=1.0
> ```
>
> The following string is the string-to-sign:
>
> ```
> GET&%2F&AccessKeyId%3Dtestid%26Action%DescribeDBInstances%26Format%3DXML %26RegionI
> d%3Dregion1%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3DN wDAxvLU6tFE0DVb%26Si
> gnatureVersion%3D1.0%26Timestamp%3D2013-06-01T10%253 A33%253A56Z%26Version%3D2014-0
> 8-15
> ```
>
> Assume that the AccessKey ID is testid and the AccessKey secret is testsecret. Then, the key used to calculate the HMAC value of the signature is testsecret&. The calculated signature string is
>
> GfQRtWbwdE8sp7q9lBgZyutVht8=
>
> The following URL is the signed request URL after the signature string is added to the request as the Signature parameter:
>
> ```
> http://gpdb.example.com/?Timestamp=2012-12-26T10%3A33%3A56Z&Format=XML& AccessKeyId
> =testid&Action=DescribeDBInstances&SignatureMethod=HMAC-SHA1& RegionId=region1&Sign
> atureNonce=NwDAxvLU6tFE0DVb&Version=2012-09-13&Sign atureVersion=1.0&Signature= Gfx
> xxxxxxxxxxxxxxxxxx
> ```

10.1.2.5. RAM authorization

10.1.2.5.1. Use RAM to authorize resources

All instances created through an Apsara Stack tenant account are resources owned by that account. An account has the full operation permissions on resources under the account by default.

Resource Access Management (RAM) allows you to grant RAM users the access and management permissions on resources owned by an Apsara Stack tenant account.

> **Note** If you do not need to use RAM, skip this procedure.

10.1.2.5.2. Resources that can be authorized in RAM

Only one type of AnalyticDB for PostgreSQL resource can be authorized in RAM: DBInstance.

The following table lists the descriptions of resources when you use RAM to authorize access permissions to these resources.

Resource description

Resource	Resource description in the authorization policy
DBInstance	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid acs:gpdb:$regionid:$accountid:dbinstance/* acs:gpdb:* : *:dbinstance/*

> **Note**
> - $regionid: the ID of a region. Use an asterisk (*) to indicate the ID of any region.
> - $dbinstanceid: the ID of a DBInstance. Use an asterisk (*) to indicate the ID of any instance.
> - $accoutid: the userid of the resource owner. Use an asterisk (*) to indicate the ID of any account.

10.1.2.5.3. Operations that can be authorized in RAM

You can use Resource Access Management (RAM) to authorize access permissions on resources. All operations except the DescribeRegions operation can be authorized.

10.1.2.5.4. Authentication rules of API operations

When you call API operations to access resources as a Resource Access Management (RAM) user, checks with RAM whether the RAM user is granted the required permissions. The permissions to be checked are determined by the resources that are used by each API operation. For more information about authentication rules of each API operation, see Authentication rules of API operations.

Authentication rules of API operations

Operation	Authorization rule
CreateDBInstance	acs:gpdb:$regionid: dbinstance /$*
DeleteDBInstance	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeDBInstanceAttribute	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeDBInstances	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeRegions	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeResourceUsage	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
ModifyDBInstanceConnectionMode	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
ModifyDBInstanceDescription	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
ModifyDBInstanceMaintainTime	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
RestartDBInstance	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DeleteDatabase	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeAccounts	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
ModifyAccountDescription	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
CreateAccount	acs:gpdb:$regionid: dbinstance /$*
ResetAccountPassword	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeDBInstanceIPArrayList	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
DescribeDBClusterIPArrayList	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid
ModifySecurityIps	acs:gpdb:$regionid: $accountid:dbinstance/$dbinstanceid

Operation	Authorization rule
DescribeSlowLogRecords	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSQLCollectorPolicy	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSQLLogFiles	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeSQLLogRecords	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
ModifySQLCollectorPolicy	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDBInstancePerformance	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
AllocateInstancePublicConnection	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
DescribeDBInstanceNetInfo	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
ReleaseClusterPublicConnection	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyDBInstanceConnectionString	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
ModifyDBInstanceNetworkType	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid
ReleaseInstancePublicConnection	acs:gpdb:$regionid:$accountid:dbinstance/$dbinstanceid

10.1.2.6. Instance management

10.1.2.6.1. CreateDBInstance

You can call this operation to create an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDBInstance	The operation that you want to perform. Set the value to CreateDBInstance.

Parameter	Type	Required	Example	Description
ClientToken	String	Yes	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request.
DBInstanceClass	String	Yes	gpdb.group.segsdx1	The instance type. For more information, see Instance types.
DBInstanceGroupCount	String	Yes	2	The number of compute nodes in the instance.
Engine	String	Yes	gpdb	The engine of the database. Set the value to gpdb.
EngineVersion	String	Yes	4.3	The version of the database engine. Set the value to 4.3.
RegionId	String	Yes	cn-hangzhou	The region ID of the instance, such as cn-hangzhou. You can call the DescribeRegions operation to query the most recent region list.
SecurityIPList	String	Yes	127.0.0.1	The list of one or more IP addresses that are allowed to access the instance. Default value: `127.0.0.1`.
ZoneId	String	Yes	cn-hangzhou-i	The zone ID of the instance, such as cn-hangzhou-d. You can call the DescribeRegions operation to query the most recent zone list.
DBInstanceDescription	String	No	gp-xxxxxx	The description of the instance. The description can be up to 256 characters in length.
PayType	String	No	Prepaid	The billing method of the instance. Default value: Postpaid. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription
Period	String	No	Month	The unit of the subscription period.
UsedTime	String	No	1	The subscription period.

Parameter	Type	Required	Example	Description
InstanceNetworkType	String	No	VPC	The network type of the instance. Valid values: Classic and VPC. Default value: Classic.
VPCId	String	No	vpc-xxxxxxx	The ID of the VPC. If you set InstanceNetworkType to VPC, you must also specify the VPCId parameter. The specified region of the VPC must be the same as the RegionId value.
VSwitchId	String	No	vsw-xxxxxxxx	If you set InstanceNetworkType to VPC, you must also specify the vSwitchId parameter. The specified zone of the vSwitch must be the same as the ZoneId value.
PrivateIpAddress	String	No	127.0.0.1	The private IP address of the instance.

Response parameters

Parameter	Type	Example	Description
ConnectionString	String	gp-xxxxxxx.gpdb.rds.aliyuncs.com	The endpoint of the instance.
DBInstanceId	String	gp-xxxxxxxxx	The ID of the instance.
OrderId	String	xxxxxxxx	The ID of the order.
Port	String	3432	The port used to connect to the instance.
RequestId	String	5414A4E5-4C36-4461-95FC-23757A20B5F8	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=CreateDBInstance
&ClientToken=0c593ea1-3bea-11e9-b96b-88e9fe637760
&Engine=gpdb
&EngineVersion=4.3
&RegionId=cn-hangzhou
&SecurityIPList=127.0.0.1
&ZoneId=cn-hangzhou-i
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDBInstanceResponse>
          <dbInstanceId>gp-xxxxxxx</dbInstanceId>
          <orderId>xxxxxxxx</orderId>
          <connectionString>gp-xxxxxxx.gpdb.rds.aliyuncs.com</connectionString>
          <port>3432</port>
          <RequestId>5414A4E5-4C36-4461-95FC-23757A20B5F8</RequestId>
</CreateDBInstanceResponse>
```

`JSON` format

```
{
    "dbInstanceId": "gp-xxxxxxx",
    "orderId": "xxxxxxxx",
    "connectionString": "gp-xxxxxxx.gpdb.rds.aliyuncs.com",
    "port": "3432",
    "RequestId": "5414A4E5-4C36-4461-95FC-23757A20B5F8"
}
```

10.1.2.6.2. DeleteDBInstance

You can call this operation to delete a pay-as-you-go instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDBInstance	The operation that you want to perform. Set the value to DeleteDBInstance.
DBInstanceId	String	Yes	gp-xxxxxx	The name of the instance.

Parameter	Type	Required	Example	Description
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests.

Response parameters

Parameter	Type	Example	Description
RequestId	String	65BDA532-28AF-4122-AA39-B382721EEE64	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DeleteDBInstance
&DBInstanceId=gp-xxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDBInstanceResponse>
       <RequestId>65BDA532-28AF-4122-AA39-B382721EEE64</RequestId>
</DeleteDBInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "65BDA532-28AF-4122-AA39-B382721EEE64"
}
```

10.1.2.6.3. DescribeDBInstanceAttribute

You can call this operation to query the details of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceAttribute	The operation that you want to perform. Set the value to DescribeDBInstanceAttribute.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	gp-xxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
Items	Array of DBInstanceAttribute	None	The information of the instance, which is an array of DBInstanceAttribut data.
DBInstanceAttribute	None	None	None
AvailabilityValue	String	100.0%	The availability of the instance. Unit: %.
ConnectionMode	String	Performance	The access mode of the instance. • Performance: standard mode • Safety: safe mode
ConnectionString	String	gp-xxxxxxx.gpdb.rds.aliyuncs.com	The endpoint of the instance.
CreationTime	String	2018-06-27T12:07:10Z	The time when the instance was created. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time is displayed in UTC. Example: 2019-05-30T12:11:4Z.
DBInstanceClass	String	gpdb.group.segsdx2	The instance type.
DBInstanceClassType	String	x	The instance family. Valid values: • s: shared instance • x: general-purpose instance • d: dedicated instance • h: dedicated host instance
DBInstanceCpuCores	Integer	2	The number of CPU cores.

Parameter	Type	Example	Description
DBInstanceDescription	String	gp-xxxxxxx	The description of the instance.
DBInstanceDiskMBPS	Long	300	The maximum disk throughput of a compute node. Unit: Mbit/s.
DBInstanceGroupCount	String	2	The number of compute nodes.
DBInstanceId	String	gp-xxxxxxx	The ID of the instance.
DBInstanceMemory	Long	16384	The memory capacity of the instance. Unit: MB.
DBInstanceNetType	String	Internet	The network type that is used by the instance. • Internet • Intranet
DBInstanceStatus	String	Running	The status of the instance. For more information, see Instance types.
DBInstanceStorage	Long	160	The disk space of the instance. Unit: GB.
Engine	String	gpdb	The engine of the database.
EngineVersion	String	4.3	The version of the database engine.
ExpireTime	String	2019-06-27T16:00:00Z	The expiration time of the instance.
HostType	String	1	The disk type of compute nodes. Valid values: • 0: SSD • 1: HDD
InstanceNetworkType	String	VPC	The network type of the instance. Valid values: • Classic • VPC

Parameter	Type	Example	Description
LockMode	String	Unlock	The locking mode of the instance. Valid values: • Unlock: The instance is not locked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked after it expires. • LockByRestoration: The instance is automatically locked before a rollback. • LockByDiskQuota: The instance is automatically locked when the disk space is full.
LockReason	String	Unknow	The reason why the instance was locked.
MaintainEndTime	String	22:00Z	The end time of the maintenance window.
MaintainStartTime	String	18:00Z	The start time of the maintenance window.
MaxConnections	Integer	500	The maximum number of concurrent connections to an instance.
PayType	String	Prepaid	The billing method of the instance. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription
Port	String	3432	The port used to connect to the instance.
ReadDelayTime	String	2	The read latency of the instance.
RegionId	String	cn-hangzhou-e	The region ID of the instance.
SecurityIPList	String	127.0.0.1	The list of one or more IP addresses that are allowed to access the instance.
Tags	Array of Tag	None	The list of one or more tags. Each tag consists of a key-value pair.
Tag	None	None	None

Parameter	Type	Example	Description
Key	String	key1	The tag key of the instance.
Value	String	value1	The tag value of the instance.
VpcId	String	vpc-xxxxxxxx	The ID of the VPC where ClassicLink is enabled.
ZoneId	String	cn-hangzhou	The zone ID of the instance.
RequestId	String	B4CAF581-2AC7-41AD-8940-D56DF7AADF5B	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeDBInstanceAttribute
&DBInstanceId=gp-xxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Items>
    <DBInstanceAttribute>
        <DBInstanceDiskMBPS>300</DBInstanceDiskMBPS>
        <ConnectionString>gp-xxxxxxx.gpdb.rds.aliyuncs.com</ConnectionString>
        <ZoneId>cn-hangzhou-e</ZoneId>
        <ConnectionMode>Performance</ConnectionMode>
        <VpcId>vpc-xxxxxxxx</VpcId>
        <Engine>gpdb</Engine>
        <MaxConnections>500</MaxConnections>
        <MaintainStartTime>18:00Z</MaintainStartTime>
        <DBInstanceGroupCount>2</DBInstanceGroupCount>
        <HostType>0</HostType>
        <DBInstanceMemory>16384</DBInstanceMemory>
        <EngineVersion>4.3</EngineVersion>
        <DBInstanceStatus>Running</DBInstanceStatus>
        <PayType>Prepaid</PayType>
        <LockMode>Unlock</LockMode>
        <DBInstanceNetType>1</DBInstanceNetType>
        <MaintainEndTime>22:00Z</MaintainEndTime>
        <DBInstanceClass>gpdb.group.segsdx2</DBInstanceClass>
        <DBInstanceId>gp-xxxxxxx</DBInstanceId>
        <DBInstanceClassType>x</DBInstanceClassType>
        <InstanceNetworkType>Classic</InstanceNetworkType>
        <DBInstanceDescription>gp-xxxxxxx</DBInstanceDescription>
        <DBInstanceStorage>160</DBInstanceStorage>
        <CreationTime>2018-06-27T12:07:10Z</CreationTime>
        <Port>3432</Port>
        <ExpireTime>2019-06-27T16:00:00Z</ExpireTime>
        <RegionId>cn-hangzhou</RegionId>
        <AvailabilityValue>100.0%</AvailabilityValue>
        <DBInstanceCpuCores>2</DBInstanceCpuCores>
        <SecurityIPList>127.0.0.1</SecurityIPList>
    </DBInstanceAttribute>
</Items>
<RequestId>B4CAF581-2AC7-41AD-8940-D56DF7AADF5B</RequestId>
```

`JSON` format

```
{
    "Items":{
        "DBInstanceAttribute":[
            {
                "DBInstanceDiskMBPS":300,
                "ConnectionString":"gp-xxxxxxx.gpdb.rds.aliyuncs.com",
                "ZoneId":"cn-hangzhou-e",
                "ConnectionMode":"Performance",
                "VpcId":"vpc-xxxxxxxx",
                "Engine":"gpdb",
                "MaxConnections":500,
                "MaintainStartTime":"18:00Z",
                "DBInstanceGroupCount":"2",
                "HostType":"0",
                "DBInstanceMemory":16384,
                "EngineVersion":"4.3",
                "DBInstanceStatus":"Running",
                "PayType":"Prepaid",
                "LockMode":"Unlock",
                "DBInstanceNetType":"1",
                "MaintainEndTime":"22:00Z",
                "DBInstanceClass":"gpdb.group.segsdx2",
                "DBInstanceId":"gp-xxxxxxx",
                "DBInstanceClassType":"x",
                "InstanceNetworkType":"Classic",
                "DBInstanceDescription":"gp-xxxxxxx",
                "DBInstanceStorage":160,
                "CreationTime":"2018-06-27T12:07:10Z",
                "Port":"3432",
                "ExpireTime":"2019-06-27T16:00:00Z",
                "RegionId":"cn-hangzhou",
                "AvailabilityValue":"100.0%",
                "DBInstanceCpuCores":2,
                "SecurityIPList":"127.0.0.1"
            }
        ]
    },
    "RequestId":"B4CAF581-2AC7-41AD-8940-D56DF7AADF5B"
}
```


10.1.2.6.4. DescribeDBInstances

You can call this operation to query the list of one or more instances.

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.

Parameter	Type	Required	Example	Description
DBInstanceDescription	String	No	gp-xxxxxxxx	The description of the instance.
InstanceNetworkType	String	No	VPC	The network type of the instance. Valid values: • VPC • Classic • If this parameter is not specified, instances of all network types are returned.
DBInstanceIds	String	No	gp-xxxxxxxxx, gp-xxxxxxx	The ID of the instance. Separate multiple IDs with commas (,).
Tag.N.Key	String	No	key1	The tag key of the instance.
Tag.N.Value	String	No	value1	The tag value of the instance.
PageSize	Integer	No	50	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30
PageNumber	Integer	No	1	The number of the page to return. Valid values: any non-zero positive integer. Default value: 1.

Response parameters

Parameter	Type	Example	Description
Items	Array of DBInstance	None	The information of the instance, which is an array of DBInstance data.
DBInstance	None	None	None
ConnectionMode	String	Standard	The access mode of the instance. Valid values: • Standard • Safe
CreateTime	String	2019-09-08T16:00:00Z	The time when the instance was created.

Parameter	Type	Example	Description
DBInstanceDescription	String	gp-xxxxxxxxxx	The description of the instance.
DBInstanceId	String	gp-xxxxxxxx	The ID of the instance.
DBInstanceNetType	String	Internet	The network type that is used by the instance.
DBInstanceStatus	String	Running	The status of the instance. For more information, see Instance types.
Engine	String	gpdb	The engine of the database.
EngineVersion	String	4.3	The version of the database engine.
ExpireTime	String	2019-09-08T16:00:00Z	The time when the instance is scheduled to expire. Pay-as-you-go instances do not expire.
InstanceNetworkType	String	VPC	The network type of the instance. Valid values: • VPC • Classic
LockMode	String	Unlock	The locking mode of the instance. Valid values: • Unlock: The instance is not locked. • ManualLock: The instance is manually locked. • LockByExpiration: The instance is automatically locked after it expires. • LockByRestoration: The instance is automatically locked before a rollback. • LockByDiskQuota: The instance is automatically locked when the disk space is full.
LockReason	String	Unknow	The reason why the instance is locked.

Parameter	Type	Example	Description
PayType	String	Prepaid	The billing method of the instance. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription
RegionId	String	cn-hangzhou	The region ID of the instance.
Tags	Array of Tag	None	The tags of the instance.
Tag	None	None	None
Key	String	key1	The tag key of the instance.
Value	String	value1	The tag value of the instance.
VSwitchId	String	vsw-xxxxxxxxx	The ID of the vSwitch.
VpcId	String	vpc-xxxxxxxxxx	The ID of the VPC.
ZoneId	String	cn-hangzhou	The zone ID of the instance.
PageNumber	Integer	1	The page number of the current page.
PageRecordCount	Integer	2	The number of entries on the current page.
RequestId	String	BBE00C04-A3E8-4114-881D-0480A72CB92E	The ID of the request.
TotalRecordCount	Integer	2	The total number of entries.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeDBInstances
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Items>
    <DBInstance>
        <LockMode>Unlock</LockMode>
        <DBInstanceNetType>1</DBInstanceNetType>
        <DBInstanceId>gp-xxxxxxx</DBInstanceId>
        <ZoneId>cn-hangzhou-e</ZoneId>
        <DBInstanceDescription>gpdb_test</DBInstanceDescription>
        <InstanceNetworkType>Classic</InstanceNetworkType>
        <VSwitchId>vsw-xxxxxxx</VSwitchId>
        <VpcId>vpc-xxxxxxx</VpcId>
        <Engine>gpdb</Engine>
        <ExpireTime>2019-06-27T16:00:00Z</ExpireTime>
        <CreateTime>2018-06-27T12:07:11Z</CreateTime>
        <RegionId>cn-hangzhou</RegionId>
        <EngineVersion>4.3</EngineVersion>
        <LockReason/>
        <DBInstanceStatus>Running</DBInstanceStatus>
        <PayType>Prepaid</PayType>
    </DBInstance>
    <DBInstance>
        <LockMode>Unlock</LockMode>
        <DBInstanceNetType>1</DBInstanceNetType>
        <DBInstanceId>gp-xxxxxxx</DBInstanceId>
        <ZoneId>cn-hangzhou-e</ZoneId>
        <DBInstanceDescription>gp-xxxxxxx</DBInstanceDescription>
        <InstanceNetworkType>Classic</InstanceNetworkType>
        <VSwitchId>vsw-xxxxxxx</VSwitchId>
        <VpcId>vpc-xxxxxxx</VpcId>
        <Engine>gpdb</Engine>
        <ExpireTime>2999-09-08T16:00:00Z</ExpireTime>
        <CreateTime>2018-06-27T11:51:46Z</CreateTime>
        <RegionId>cn-hangzhou</RegionId>
        <EngineVersion>4.3</EngineVersion>
        <LockReason/>
        <DBInstanceStatus>Running</DBInstanceStatus>
        <PayType>Postpaid</PayType>
    </DBInstance>
</Items>
<PageNumber>1</PageNumber>
<TotalRecordCount>2</TotalRecordCount>
<RequestId>BBE00C04-A3E8-4114-881D-0480A72CB92E</RequestId>
<PageRecordCount>2</PageRecordCount>
```

`JSON` format

```
{
    "Items":{
        "DBInstance":[
            {
                "LockMode":"Unlock",
                "DBInstanceNetType":"1",
                "DBInstanceId":"gp-xxxxxxx",
                "ZoneId":"cn-hangzhou-e",
                "DBInstanceDescription":"gpdb_test",
                "InstanceNetworkType":"Classic",
                "VSwitchId":"vsw-xxxxxxx",
                "VpcId":"vpc-xxxxxxx",
                "Engine":"gpdb",
                "ExpireTime":"2019-06-27T16:00:00Z",
                "CreateTime":"2018-06-27T12:07:11Z",
                "RegionId":"cn-hangzhou",
                "EngineVersion":"4.3",
                "LockReason":"",
                "DBInstanceStatus":"Running",
                "PayType":"Prepaid"
            },
            {
                "LockMode":"Unlock",
                "DBInstanceNetType":"1",
                "DBInstanceId":"gp-xxxxxxx",
                "ZoneId":"cn-hangzhou-e",
                "DBInstanceDescription":"gp-xxxxxxx",
                "InstanceNetworkType":"Classic",
                "VSwitchId":"vsw-xxxxxxx",
                "VpcId":"vpc-xxxxxxx",
                "Engine":"gpdb",
                "ExpireTime":"2999-09-08T16:00:00Z",
                "CreateTime":"2018-06-27T11:51:46Z",
                "RegionId":"cn-hangzhou",
                "EngineVersion":"4.3",
                "LockReason":"",
                "DBInstanceStatus":"Running",
                "PayType":"Postpaid"
            }
        ]
    },
    "PageNumber":1,
    "TotalRecordCount":2,
    "RequestId":"BBE00C04-A3E8-4114-881D-0480A72CB92E",
    "PageRecordCount":2
}
```


10.1.2.6.5. DescribeRegions

You can call this operation to query available regions and zones. You must call the DescribeRegions operation to query the available regions before you call the CreateDBInstance operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to DescribeRegions.
RegionId	String	No	cn-hangzhou	The region ID.
Region	String	No	cn-hangzhou	The information of the region, which is an array of region ID and zone ID.
ZoneId	String	No	cn-hangzhou-c	The zone ID.

Response parameters

Parameter	Type	Example	Description
Regions	Array of Region	None	The list of available regions, which is an array of Region data.
Region	None	None	None
RegionId	String	cn-hangzhou	The region ID.
Zones	Array of Zone	None	The list of available zones, which is an array of Zone data.
Zone	None	None	None
VpcEnabled	Boolean	true	Indicates whether the VPC in the zone is available.
ZoneId	String	cn-hangzhou-c	The zone ID.
RequestId	String	FF8EB261-5447-4B1B-9F14-294CEA008A9F	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeRegions
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>FF8EB261-5447-4B1B-9F14-294CEA008A9F</RequestId>
<Regions>
    <Region>
        <RegionId>cn-beijing</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-beijing-c</ZoneId>
            </Zone>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-beijing-g</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-zhangjiakou</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-zhangjiakou-b</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-hangzhou</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-hangzhou-b</ZoneId>
            </Zone>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-hangzhou-e</ZoneId>
            </Zone>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-hangzhou-f</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-shanghai</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-shanghai-b</ZoneId>
```

```
            </Zone>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-shanghai-d</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-shenzhen</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-shenzhen-a</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>ap-southeast-1</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-southeast-1b</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>ap-southeast-2</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-southeast-2a</ZoneId>
            </Zone>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-southeast-2b</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>us-east-1</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>us-east-1b</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>us-west-1</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>us-west-1a</ZoneId>
            </Zone>
```

```
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-chengdu</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-chengdu-a</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>ap-southeast-3</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-southeast-3a</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>cn-huhehaote</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>cn-huhehaote-a</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>ap-south-1</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-south-1a</ZoneId>
            </Zone>
        </Zones>
    </Region>
    <Region>
        <RegionId>ap-southeast-5</RegionId>
        <Zones>
            <Zone>
                <VpcEnabled>true</VpcEnabled>
                <ZoneId>ap-southeast-5a</ZoneId>
            </Zone>
        </Zones>
    </Region>
</Regions>
```

`JSON` format

```
{
    "RequestId":"FF8EB261-5447-4B1B-9F14-294CEA008A9F",
    "Regions":{
```

```
"Regions":{
    "Region":[
        {
            "RegionId":"cn-beijing",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-beijing-c"
                    },
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-beijing-g"
                    }
                ]
            }
        },
        {
            "RegionId":"cn-zhangjiakou",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-zhangjiakou-b"
                    }
                ]
            }
        },
        {
            "RegionId":"cn-hangzhou",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-hangzhou-b"
                    },
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-hangzhou-e"
                    },
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-hangzhou-f"
                    }
                ]
            }
        },
        {
            "RegionId":"cn-shanghai",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-shanghai-b"
                    },
```

```
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-shanghai-d"
                    }
                ]
            }
        },
        {
            "RegionId":"cn-shenzhen",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"cn-shenzhen-a"
                    }
                ]
            }
        },
        {
            "RegionId":"ap-southeast-1",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"ap-southeast-1b"
                    }
                ]
            }
        },
        {
            "RegionId":"ap-southeast-2",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"ap-southeast-2a"
                    },
                    {
                        "VpcEnabled":true,
                        "ZoneId":"ap-southeast-2b"
                    }
                ]
            }
        },
        {
            "RegionId":"us-east-1",
            "Zones":{
                "Zone":[
                    {
                        "VpcEnabled":true,
                        "ZoneId":"us-east-1b"
                    }
                ]
            }
```

```
            },
            {
                "RegionId":"us-west-1",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"us-west-1a"
                        }
                    ]
                }
            },
            {
                "RegionId":"cn-chengdu",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"cn-chengdu-a"
                        }
                    ]
                }
            },
            {
                "RegionId":"ap-southeast-3",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"ap-southeast-3a"
                        }
                    ]
                }
            },
            {
                "RegionId":"cn-huhehaote",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"cn-huhehaote-a"
                        }
                    ]
                }
            },
            {
                "RegionId":"ap-south-1",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"ap-south-1a"
                        }
                    ]
```

```
                }
            },
            {
                "RegionId":"ap-southeast-5",
                "Zones":{
                    "Zone":[
                        {
                            "VpcEnabled":true,
                            "ZoneId":"ap-southeast-5a"
                        }
                    ]
                }
            }
        ]
    }
}
```

10.1.2.6.6. DescribeResourceUsage

You can call this operation to query the disk space that is used by an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeResourceUsage	The operation that you want to perform. Set the value to DescribeResourceUsage.
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
BackupSize	Long	26624	The disk space that is used to store backup files. Unit: bytes. -1 indicates no space is used.
DBInstanceId	String	gp-xxxxxxxx	The ID of the instance.
DataSize	Long	83886080	The disk space that is used to store data files. Unit: bytes. -1 indicates that no space is used.

Parameter	Type	Example	Description
DiskUsed	Long	285212672	The total space occupied by data and log files. Unit: bytes. -1 indicates that no space is used.
Engine	String	gpdb	The engine of the database.
LogSize	Long	201326592	The disk space that is used to store log files. Unit: bytes. -1 indicates that no space is used.
RequestId	String	860FBA9E-BFFD-493E-91A1-2349B9D74AE7	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeResourceUsage
&DBInstanceId=gp-xxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeResourceUsageResponse>
          <DBInstanceId>gp-xxxxxxx</DBInstanceId>
          <RequestId>860FBA9E-BFFD-493E-91A1-2349B9D74AE7</RequestId>
          <LogSize>201326592</LogSize>
          <DataSize>83886080</DataSize>
          <BackupSize>26624</BackupSize>
          <Engine>gpdb</Engine>
          <DiskUsed>285212672</DiskUsed>
</DescribeResourceUsageResponse>
```

`JSON` format

```
{
    "DBInstanceId":"gp-xxxxxxx",
    "RequestId":"860FBA9E-BFFD-493E-91A1-2349B9D74AE7",
    "LogSize":201326592,
    "DataSize":83886080,
    "BackupSize":26624,
    "Engine":"gpdb",
    "DiskUsed":285212672
}
```

10.1.2.6.7. ModifyDBInstanceConnectionMode

You can call this operation to change the access mode of an instance.

Request parameters

Parameter	Type	Required	Example	Description
ConnectionMode	String	Yes	Standard	The access mode of the instance. Valid values: • Standard • Safe
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8361E350-4CCC-4D28-B020-55B4DCB75D3B	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyDBInstanceConnectionMode
&ConnectionMode=Standard
&DBInstanceId=gp-xxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceConnectionModeResponse>
          <RequestId>8361E350-4CCC-4D28-B020-55B4DCB75D3B</RequestId>
</ModifyDBInstanceConnectionModeResponse>
```

`JSON` format

```
{
    "RequestId":"8361E350-4CCC-4D28-B020-55B4DCB75D3B"
}
```

10.1.2.6.8. ModifyDBInstanceDescription

You can call this operation to modify the description of an instance.

Request parameters

Parameter	Type	Required	Example	Description
DBInstanceDescription	String	Yes	gp-xxxxxxxx	The description of the instance.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	107BE202-D1A2-479E-98E0-A892B472562F	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyDBInstanceDescription
&DBInstanceDescription=gp-xxxxxxxx
&DBInstanceId=gp-xxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceDescriptionResponse>
          <RequestId>107BE202-D1A2-479E-98E0-A892B472562F</RequestId>
</ModifyDBInstanceDescriptionResponse>
```

`JSON` format

```
{
        "RequestId": "107BE202-D1A2-479E-98E0-A892B472562F"
}
```

10.1.2.6.9. ModifyDBInstanceMaintainTime

You can call this operation to modify the maintenance window of an instance.

Typically, the maintenance window is set to the off-peak hours to minimize the impact on services. Alibaba Cloud performs instance maintenance at the maintenance window that you specify.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceMaintainTime	The operation that you want to perform. Set the value to ModifyDBInstanceMaintainTime.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
EndTime	String	Yes	03:00Z	The end time of the maintenance window. Example: 03:00Z. The end time must be later than the start time.
StartTime	String	Yes	02:00Z	The start time of the maintenance window. Example: 02:00Z.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CA9A34C8-AC95-413B-AC6A-CEBF67429CCA	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyDBInstanceMaintainTime
&DBInstanceId=gp-xxxxxxxx
&EndTime=03:00Z
&StartTime=02:00Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceMaintainTimeResponse>
          <RequestId>CA9A34C8-AC95-413B-AC6A-CEBF67429CCA</RequestId>
</ModifyDBInstanceMaintainTimeResponse>
```

`JSON` format

```
{
   "RequestId": "CA9A34C8-AC95-413B-AC6A-CEBF67429CCA"
}
```

10.1.2.6.10. RestartDBInstance

You can call this operation to restart an instance.

Request parameters

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests.

Response parameters

Parameter	Type	Example	Description
RequestId	String	A7356493-7141-4393-8951-CDA8AB5D67EC	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=RestartDBInstance
&DBInstanceId=gp-xxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RestartDBInstance>
          <RequestId>A7356493-7141-4393-8951-CDA8AB5D67EC</RequestId>
</RestartDBInstance>
```

`JSON` format

```
{
  "RequestId":"A7356493-7141-4393-8951-CDA8AB5D67EC"
}
```

10.1.2.6.11. DescribeDBInstancePerformance

You can call this operation to query the specified performance metrics for an instance in a time range.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstancePerformance	The operation that you want to perform. Set the value to DescribeDBInstancePerformance.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
EndTime	String	Yes	2018-07-09T03:47Z	The end of the time range to query. Example: 2018-06-11T16:00Z.
Key	String	Yes	CpuUsage,MemoryUsage,Gpdb_SpaceUsage,Gpdb_IOPS,Gpdb_session	The performance metrics. Separate multiple performance metrics with commas (,). For more information, see Performance parameters.
StartTime	String	Yes	2018-07-08T03:47Z	The beginning of the time range to query. Example: 2018-06-11T15:00Z.

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	gp-xxxxxxxxxx	The ID of the instance.
EndTime	String	2018-07-09T03:47Z	The end of the time range within which the query is executed. The time follows the ISO 8601 standard in the `YYYY-MM-DDTHH:mmZ` format. The time is displayed in UTC. Example: 2018-05-30T03:29Z. The end time is later than the start time.
Engine	String	gpdb	The engine of the database.

Parameter	Type	Example	Description
PerformanceKeys	List	{ "Key": "MemoryUsage", "GroupValues": [{ "Name": "7198315-1530522046144-1", "Values": "" }, { "Name": "7198315-1530522046144-0", "Values": "" }, {"Values": "", "Name": "master" }], "Unit": "%", "ValueFormat": "mem_usage"}	An array that contains the performance metrics. It is in the {perf1, perf2, perf3, ...} format.
RequestId	String	5E85244A-AB47-46A3-A3AD-5F307DCB407E	The ID of the request.
StartTime	String	2018-07-08T03:47Z	The beginning of the time range within which the query is executed. The time follows the ISO 8601 standard in the `YYYY-MM-DDTHH:mmZ` format. The time is displayed in UTC. Example: 2018-05-30T03:29Z.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeDBInstancePerformance
&DBInstanceId=gp-xxxxxxxx
&EndTime=2018-07-09T03:47Z
&Key=CpuUsage,MemoryUsage,Gpdb_SpaceUsage,Gpdb_IOPS,Gpdb_session
&StartTime=2018-07-08T03:47Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstancePerformanceResponse>
      <RequestId>5E85244A-AB47-46A3-A3AD-5F307DCB407E</RequestId>
      <DBInstanceId>gp-xxxxxxx</DBInstanceId>
      <PerformanceKeys>
            <Key>MemoryUsage</Key>
            <GroupValues>
                  <Name>7198315-1530522046144-1</Name>
                  <Values></Values>
            </GroupValues>
            <GroupValues>
                  <Name>7198315-1530522046144-0</Name>
                  <Values></Values>
```

```
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Values></Values>
                <Name>master</Name>
        </GroupValues>
        <Unit>%</Unit>
        <ValueFormat>mem_usage</ValueFormat>
</PerformanceKeys>
<PerformanceKeys>
        <Key>Gpdb_session</Key>
        <GroupValues>
                <Name>7198315-1530522046144-1</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Name>7198315-1530522046144-0</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Values></Values>
                <Name>master</Name>
        </GroupValues>
        <Unit>int</Unit>
        <ValueFormat>conn_count</ValueFormat>
</PerformanceKeys>
<PerformanceKeys>
        <Key>CpuUsage</Key>
        <GroupValues>
                <Name>7198315-1530522046144-1</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Name>7198315-1530522046144-0</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Values></Values>
                <Name>master</Name>
        </GroupValues>
        <Unit>%</Unit>
        <ValueFormat>cpu_usage</ValueFormat>
</PerformanceKeys>
<PerformanceKeys>
        <Key>Gpdb_IOPS</Key>
        <GroupValues>
                <Name>7198315-1530522046144-1</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Name>7198315-1530522046144-0</Name>
                <Values></Values>
        </GroupValues>
        <GroupValues>
                <Values></Values>
```

```
                <Name>master</Name>
            </GroupValues>
            <Unit>int</Unit>
            <ValueFormat>data_iops&amp;amp;write_iops&amp;amp;read_iops</ValueFormat>
        </PerformanceKeys>
        <PerformanceKeys>
            <Key>Gpdb_SpaceUsage</Key>
            <GroupValues>
                <Name>7198315-1530522046144-1</Name>
                <Values></Values>
            </GroupValues>
            <GroupValues>
                <Name>7198315-1530522046144-0</Name>
                <Values></Values>
            </GroupValues>
            <GroupValues>
                <Values></Values>
                <Name>master</Name>
            </GroupValues>
            <Unit>Byte</Unit>
            <ValueFormat>space</ValueFormat>
        </PerformanceKeys>
        <EndTime>2018-07-09T03:47Z</EndTime>
        <StartTime>2018-07-08T03:47Z</StartTime>
        <Engine>gpdb</Engine>
</DescribeDBInstancePerformanceResponse>
```

`JSON` format

```
{
        "RequestId": "5E85244A-AB47-46A3-A3AD-5F307DCB407E",
        "DBInstanceId": "gp-xxxxxxx",
        "PerformanceKeys": [
            {
                "Key": "MemoryUsage",
                "GroupValues": [
                    {
                        "Name": "7198315-1530522046144-1",
                        "Values": ""
                    },
                    {
                        "Name": "7198315-1530522046144-0",
                        "Values": ""
                    },
                    {
                        "Values": "",
                        "Name": "master"
                    }
                ],
                "Unit": "%",
                "ValueFormat": "mem_usage"
            },
            {
```

```
            "Key": "Gpdb_session",
            "GroupValues": [
                {
                    "Name": "7198315-1530522046144-1",
                    "Values": ""
                },
                {
                    "Name": "7198315-1530522046144-0",
                    "Values": ""
                },
                {
                    "Values": "",
                    "Name": "master"
                }
            ],
            "Unit": "int",
            "ValueFormat": "conn_count"
        },
        {
            "Key": "CpuUsage",
            "GroupValues": [
                {
                    "Name": "7198315-1530522046144-1",
                    "Values": ""
                },
                {
                    "Name": "7198315-1530522046144-0",
                    "Values": ""
                },
                {
                    "Values": "",
                    "Name": "master"
                }
            ],
            "Unit": "%",
            "ValueFormat": "cpu_usage"
        },
        {
            "Key": "Gpdb_IOPS",
            "GroupValues": [
                {
                    "Name": "7198315-1530522046144-1",
                    "Values": ""
                },
                {
                    "Name": "7198315-1530522046144-0",
                    "Values": ""
                },
                {
                    "Values": "",
                    "Name": "master"
                }
            ],
            "Unit": "int",
            "ValueFormat": "data_iops&mp;write_iops&mp;read_iops"
```

```
                "ValueFormat": "data_iops&amp;write_iops&amp;read_iops"
            },
            {
                "Key": "Gpdb_SpaceUsage",
                "GroupValues": [
                    {
                        "Name": "7198315-1530522046144-1",
                        "Values": ""
                    },
                    {
                        "Name": "7198315-1530522046144-0",
                        "Values": ""
                    },
                    {
                        "Values": "",
                        "Name": "master"
                    }
                ],
                "Unit": "Byte",
                "ValueFormat": "space"
            }
        ],
        "EndTime": "2018-07-09T03:47Z",
        "StartTime": "2018-07-08T03:47Z",
        "Engine": "gpdb"
}
```


10.1.2.6.12. UpgradeDBVersion

You can call this operation to upgrade the minor version of a specified instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpgradeDBVersion	The operation that you want to perform. Set the value to UpgradeDBVersion.
DBInstanceId	String	Yes	gp-xxxxxxxxxxxx	The ID of the instance.
MajorVersion	String	Yes	6.0	The major version of the instance.
MinorVersion	String	Yes	6.0	The minor version of the instance.
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.

Parameter	Type	Required	Example	Description
SwitchTimeMode	String	No	xxxxx	The upgrade method.
SwitchTime	String	No	2020-01-15T00:00:00Z	The upgrade time.

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	gp-xxxxxxxxxxxx	The ID of the instance.
DBInstanceName	String	gp-xxxxxxxxxxxx	The description of the instance.
RequestId	String	25C11EE5-B7E8-481A-A07C-BD619971A570	The ID of the request.
TaskId	String	101450956	The ID of the task.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=UpgradeDBVersion
&DBInstanceId=gp-wz9kmr708m155j***
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpgradeDBVersionResponse>
          <requestId>25C11EE5-B7E8-481A-A07C-BD619971A570</requestId>
          <DBInstanceId>gp-wz9kmr708m155j***</DBInstanceId>
          <DBInstanceName>gp-wz9kmr708m155j***</DBInstanceName>
          <TaskId>101450956</TaskId>
</UpgradeDBVersionResponse>
```

`JSON` format

```
{
  "requestId": "25C11EE5-B7E8-481A-A07C-BD619971A570",
  "DBInstanceId": "gp-wz9kmr708m155j***",
  "DBInstanceName": "gp-wz9kmr708m155j***",
  "TaskId": "101450956"
}
```

10.1.2.6.13. UpgradeDBInstance

You can call this operation to change the instance type of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpgradeDBInstance	The operation that you want to perform. Set the value to UpgradeDBInstance.
DBInstanceClass	String	Yes	gpdb.group.segsdx1	The instance type. For more information, see Instance types.
DBInstanceGroupCount	String	Yes	2	The number of compute nodes of the instance.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.
PayType	String	No	Prepaid	The billing method of the instance. Default value: Postpaid. Valid values: • Postpaid: pay-as-you-go • Prepaid: subscription

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	gp-xxxxxxxxxx	The ID of the instance.
OrderId	String	101450956	The order ID of the instance.
RequestId	String	25C11EE5-B7E8-481A-A07C-BD619971A570	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=UpgradeDBInstance
&DBInstanceClass=gpdb.group.segsdx1
&DBInstanceGroupCount=2
&DBInstanceId=gp-xxxxxxxx
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpgradeDBInstanceResponse>
          <requestId>25C11EE5-B7E8-481A-A07C-BD619971A570</requestId>
          <DBInstanceId>gp-wz9kmr708m155j***</DBInstanceId>
          <OrderId>101450956</OrderId>
</UpgradeDBInstanceResponse>
```

`JSON` format

```
{
  "requestId": "25C11EE5-B7E8-481A-A07C-BD619971A570",
  "DBInstanceId": "gp-wz9kmr708m155j***",
  "OrderId": "101450956"
}
```

10.1.2.6.14. DescribeSpecification

You can call this operation to query the specifications of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSpecification	The operation that you want to perform. Set the value to DescribeSpecification.
CpuCores	Integer	Yes	4	The number of CPU cores.
DBInstanceId	String	Yes	gp-xxxxxxx	The ID of the instance.
StorageType	String	Yes	ssd	The storage type of the instance. Valid values: ssd and hdd.
TotalNodeNum	Integer	Yes	4	The number of compute nodes.

Response parameters

Parameter	Type	Example	Description
DBInstanceClass	Array of DBInstanceClass	None	An array of instance specifications.
Text	String	1x1C SSD	The specification of the instance.
Value	String	gpdb.group.segsdx1	The instance type.
DBInstanceGroupCount	Array of DBInstanceGroupCount	None	An array of compute node specifications.
Text	String	4 CPU Cores	The number of CPU cores.
Value	String	2	The number of compute nodes.
RequestId	String	65BDA532-28AF-4122-AA39-B382721EEE64	The ID of the request.
StorageNotice	Array of StorageNotice	None	An array of storage specifications.
Text	String	1000GB	The storage capacity.
Value	String	8	The number of nodes.

Examples

Sample requests

```
http(s)://gpdb.aliyuncs.com/? Action=DescribeSpecification
&DBInstanceId=gp-xxxxxxx
&CpuCores=2
&StorageType=ssd
&TotalNodeNum=4
```

Sample success responses

`XML` format

```
<DescribeSpecificationResponse>
  <DBInstanceClass>
        <Text>1x1C SSD</Text>
        <Value>gpdb.group.segsdx1</Value>
  </DBInstanceClass>
  <DBInstanceGroupCount>
        <Text>2</Text>
        <Value>2</Value>
  </DBInstanceGroupCount>
  <StorageNotice>
        <Text>4 CPU Cores/32GB Memory/1000GB Storage</Text>
        <Value>2</Value>
  </StorageNotice>
</DescribeSpecificationResponse>
```

`JSON` format

```
{
    "DBInstanceClass": [
        {
            "Text": "1x1C SSD",
            "Value": "gpdb.group.segsdx1"
        }
    ],
    "DBInstanceGroupCount": [
        {
            "Text": "2",
            "Value": "2"
        }
    ],
    "StorageNotice": [
        {
        "Text": "4 CPU Cores/32GB Memory/1000GB Storage",
        "Value": "2"
        }
    ]
}
```

10.1.2.6.15. AddBuDBInstanceRelation

You call this operation to associate the BusinessUnit parameter to an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddBuDBInstanceRelation	The operation that you want to perform. Set the value to AddBuDBInstanceRelation.

Parameter	Type	Required	Example	Description
BusinessUnit	String	Yes	BusinessUnit	The description of the business unit.
DBInstanceId	String	Yes	gp-xxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
BusinessUnit	String	BusinessUnit	The description of the business unit.
DBInstanceName	String	gp-xxxxxx	The ID of the instance.
RequestId	String	B4CAF581-2AC7-41AD-8940-D56DF7AADF5B	The ID of the request.

Examples

Sample requests

```
http(s)://gpdb.aliyuncs.com/? Action=AddBuDBInstanceRelation
&DBInstanceId=gp-xxxxxx
&BusinessUnit=BusinessUnit
```

Sample success responses

`XML` format

```
<AddBuDBInstanceRelationResponse>
      <RequestId>D4D4BE8A-DD46-440A-BFCD-EE31DA81C9DD</RequestId>
      <BusinessUnit>BusinessUnit</BusinessUnit>
      <DBInstanceName>gp-xxxxxx</DBInstanceName>
</AddBuDBInstanceRelationResponse>
```

`JSON` format

```
{
  "RequestId":"D4D4BE8A-DD46-440A-BFCD-EE31DA81C9DD",
  "BusinessUnit": "BusinessUnit",
  "DBInstanceName": "gp-xxxxxx"
}
```

10.1.2.7. Database management

10.1.2.7.1. DeleteDatabase

You can call this operation to delete a database from an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDatabase	The operation that you want to perform. Set the value to DeleteDatabase.
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.
DBName	String	No	testdb01	The name of the database.

Response parameters

Parameter	Type	Example	Description
RequestId	String	07F6177E-6DE4-408A-BB4F-0723301340F3	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DeleteDatabase
&DBName=testdb01
&DBInstanceId=gp-xxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDatabaseResponse>
       <RequestId>07F6177E-6DE4-408A-BB4F-0723301340F3</RequestId>
</DeleteDatabaseResponse>
```

`JSON` format

```
{
    "RequestId":"07F6177E-6DE4-408A-BB4F-0723301340F3"
}
```

10.1.2.8. Account management

10.1.2.8.1. CreateAccount

You can call this operation to create an account for a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateAccount	The operation that you want to perform. Set the value to CreateAccount.
AccountName	String	Yes	testacc02	The name of the account.
AccountPassword	String	Yes	pw1234	The password for the account.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
DatabaseName	String	No	test01	The name of the database.
AccountDescription	String	No	testacc02	The description of the account.

Response parameters

Parameter	Type	Example	Description
RequestId	String	D4D4BE8A-DD46-440A-BFCD-EE31DA81C9DD	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=CreateAccount
&AccountName=testacc02
&AccountPassword=pw1234
&DBInstanceId=gp-xxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateAccountResponse>
          <RequestId>D4D4BE8A-DD46-440A-BFCD-EE31DA81C9DD</RequestId>
</CreateAccountResponse>
```

`JSON` format

```
{
  "RequestId":"D4D4BE8A-DD46-440A-BFCD-EE31DA81C9DD"
}
```

10.1.2.8.2. ResetAccountPassword

You can call this operation to reset the password for your account in an instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- The instance is not locked.

Request parameters

Parameter	Type	Required	Example	Description
AccountName	String	Yes	testaccount_1	The name of the account.
AccountPassword	String	Yes	Testaccount_1	The new password for the account. The password must be 8 to 32 characters in length and contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include `! @ # $ % ^ & * ( ) _ + - =`
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	187C80FC-75C4-477C-BBF2-A368A36D041C	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ResetAccountPassword
&AccountName=testaccount_1
&AccountPassword=Testaccount_1
&DBInstanceId=gp-xxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ResetAccountPasswordResponse>
          <RequestId>187C80FC-75C4-477C-BBF2-A368A36D041C</RequestId>
</ResetAccountPasswordResponse>
```

`JSON` format

```
{
    "RequestId":"187C80FC-75C4-477C-BBF2-A368A36D041C"
}
```

10.1.2.8.3. DescribeAccounts

You can call this operation to query the information of a database account.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAccounts	The operation that you want to perform. Set the value to DescribeAccounts.
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.
AccountName	String	No	onlyreadacc	The name of the account.

Response parameters

Parameter	Type	Example	Description
Accounts	Array of DBInstanceAccount	None	The information of the account, which is an array of DBInstanceAccount data.
DBInstanceAccount	None	None	None

Parameter	Type	Example	Description
AccountDescription	String	testacc01	The description of the account.
AccountName	String	testacc01	The name of the account.
AccountStatus	String	1	The status of the account. Valid values: • 0: The account is being created. • 1: The account is in use. • 3: The account is being deleted.
DBInstanceId	String	gp-xxxxxxxx	The ID of the instance.
RequestId	String	7565770E-7C45-462D-BA4A-8A5396F2CAD1	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeAccounts
&DBInstanceId=gp-xxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAccountsResponse>
          <RequestId>7565770E-7C45-462D-BA4A-8A5396F2CAD1</RequestId>
            <Accounts>
                  <DBInstanceAccount>
                        <AccountName>testaccount_1</AccountName>
                        <DBInstanceId>gp-xxxxxxx</DBInstanceId>
                        <AccountStatus>1</AccountStatus>
                        <AccountDescription></AccountDescription>
                  </DBInstanceAccount>
            </Accounts>
</DescribeAccountsResponse>
```

`JSON` format

```
{
    "Accounts": {
      "DBInstanceAccount": [
        {
          "AccountDescription": "",
          "DBInstanceId": "gp-xxxxxxx",
          "AccountStatus": "1",
          "AccountName": "testaccount_1"
        }
      ]
    },
    "RequestId": "7565770E-7C45-462D-BA4A-8A5396F2CAD1"
  }
```


10.1.2.8.4. ModifyAccountDescription

You can call this operation to modify the description of a database account in an instance.

Request parameters

Parameter	Type	Required	Example	Description
AccountDescription	String	Yes	testAccoutdescribe	The new description of the database account. The description must meet the following requirements: • The description must start with a letter. • The description cannot start with `http://` or `https://`. • The description can contain letters, underscores (_), hyphens (-), and digits. • The description must be 2 to 256 characters in length.
AccountName	String	Yes	testAccout	The name of the account. The account name must be unique and meet the following requirements: • The name must start with a letter. • The name can contain lowercase letters, digits, and underscores (_). • The name can be up to 16 characters in length. • The name cannot contain reserved keywords.
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	99BBBD5E-B5D8-4FC8-B8BF-FB1A0A38BBA2	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyAccountDescription
&AccountDescription=testAccoutdescribe
&AccountName=testAccout
&DBInstanceId=gp-xxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyAccountDescriptionResponse>
          <RequestId>99BBBD5E-B5D8-4FC8-B8BF-FB1A0A38BBA2</RequestId>
</ModifyAccountDescriptionResponse>
```

`JSON` format

```
{
    "RequestId": "99BBBD5E-B5D8-4FC8-B8BF-FB1A0A38BBA2"
}
```

10.1.2.9. Security management

10.1.2.9.1. DescribeDBInstanceIPArrayList

You can call this operation to query the list of one or more IP addresses that are allowed to access an instance.

Request parameters

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
Items	Array of DBInstanceIPArray	None	The information of IP addresses that are allowed to access the instance, which is an array of DBInstanceIPArray data.
DBInstanceIPArray	None	None	None
DBInstanceIPArrayAttribute	String	hidden	This parameter is empty by default. You can use this parameter to specify an attribute for a whitelist. A whitelist with the `hidden` attribute does not appear in the console.
DBInstanceIPArrayName	String	default	The name of the whitelist.
SecurityIPList	String	127.0.0.1	The IP addresses listed in the whitelist. You can add up to 1,000 IP addresses to the whitelist. Separate multiple IP addresses with commas (,). The IP addresses must use one of the following formats: • 0.0.0.0/0 • 10.23.12.24. This is an IP address. • Classless Inter-Domain Routing (CIDR) blocks, such as 10.23.12.24/24, where `/24` indicates the prefix of the CIDR block is 24 bits in length. You can replace 24 with a value in the range of `1 to 32`.
RequestId	String	CB7AA0BF-BE41-480E-A3DC-C97BF85A391B	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeDBInstanceIPArrayList
&DBInstanceId=gp-xxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceIPArrayListResponse>
  <Items>
        <DBInstanceIPArray>
              <DBInstanceIPArrayName>default</DBInstanceIPArrayName>
              <DBInstanceIPArrayAttribute>hidden</DBInstanceIPArrayAttribute>
              <securityIPList>127.0.0.1</securityIPList>
        </DBInstanceIPArray>
  </Items>
  <RequestId>CB7AA0BF-BE41-480E-A3DC-C97BF85A391B</RequestId>
</DescribeDBInstanceIPArrayListResponse>
```

`JSON` format

```
{
    "Items":{
        "DBInstanceIPArray":[
            {
              "DBInstanceIPArrayName":"default",
              "DBInstanceIPArrayAttribute":"hidden",
              "securityIPList":"127.0.0.1"
            }
        ]
    },
    "RequestId":"CB7AA0BF-BE41-480E-A3DC-C97BF85A391B"
}
```

10.1.2.9.2. ModifySecurityIps

You can call this operation to modify the IP addresses that are allowed to access an instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the Running state.
- The instance is not locked.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityIps	The operation that you want to perform. Set the value to ModifySecurityIps.
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
SecurityIPList	String	Yes	127.0.0.1	The IP addresses listed in the whitelist. You can add up to 1,000 IP addresses to the whitelist. Separate multiple IP addresses with commas (,). The IP addresses must use one of the following formats: • 0.0.0.0/0 • 10.23.12.24. This is an IP address. • Classless Inter-Domain Routing (CIDR) blocks, such as 10.23.12.24/24, where `/24` indicates the prefix of the CIDR block is 24 bits in length. You can replace 24 with a value in the range of `1 to 32`.
DBInstanceIPArrayName	String	No	Default	The name of the whitelist. If you do not enter a name, IP addresses are added to the default whitelist. **Note** You can create up to 50 whitelists for an instance.
DBInstanceIPArrayAttribute	String	No	hidden	The attribute of the IP address whitelist. By default, this parameter is empty. You can use this parameter to distinguish whitelists that have different attributes. The console does not display whitelists that have the `hidden` attribute.

Response parameters

Parameter	Type	Example	Description
RequestId	String	871C698F-B43D-4D1D-ACD6-DF56B0F89978	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifySecurityIps
&DBInstanceId=gp-xxxxxxxxx
&SecurityIPList=127.0.0.1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityIpsResponse>
          <RequestId>871C698F-B43D-4D1D-ACD6-DF56B0F89978</RequestId>
</ModifySecurityIpsResponse>
```

`JSON` format

```
{
  "RequestId":"871C698F-B43D-4D1D-ACD6-DF56B0F89978"
}
```

10.1.2.10. Log management

10.1.2.10.1. DescribeSQLCollectorPolicy

You can call this operation to query whether the SQL collection feature is enabled for an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSQLCollectorPolicy	The operation that you want to perform. Set the value to DescribeSQLCollectorPolicy.
DBInstanceId	String	Yes	gp-xxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	ABB39CC3-4488-4857-905D-2E4A051D0521	The ID of the request.
SQLCollectorStatus	String	Enable	The status of SQL collection. • Enable: SQL collection is enabled. • Disabled: SQL collection is disabled.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeSQLCollectorPolicy
&DBInstanceId=gp-xxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSQLCollectorPolicyResponse>
   <RequestId>ABB39CC3-4488-4857-905D-2E4A051D0521</RequestId>
   <SQLCollectorStatus>Enable</SQLCollectorStatus>
</DescribeSQLCollectorPolicyResponse>
```

`JSON` format

```
{
    "RequestId":"ABB39CC3-4488-4857-905D-2E4A051D0521",
    "SQLCollectorStatus":"Enable"
}
```

10.1.2.10.2. DescribeSlowLogRecords

You can call this operation to query slow SQL query details of a database in an instance in a specified time range.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSlowLogRecords	The operation that you want to perform. Set the value to DescribeSlowLogRecords.
DBInstanceId	String	Yes	gp-xxxxxxx	The ID of the instance.
EndTime	String	Yes	2018-07-19T09:00:08Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDTHH:mmZ` format. The time must be in UTC. Example: 2011-06-11T15:00Z.

Parameter	Type	Required	Example	Description
StartTime	String	Yes	2018-07-09T09:00:08Z	The beginning of the time range to query. Specify the time in the `YYYY-MM-DDTHH:mmZ` format. The time must be in UTC. Example: 2011-06-11T15:00Z.
SQLId	Long	No	143242632	The ID of the SQL query.
DBName	String	No	test	The name of the database.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	1	The number of the page to return. Valid values: any non-zero positive integer. Default value: 1.

Response parameters

Parameter	Type	Example	Description
Engine	String	gpdb	The engine of the database.
Items	Array of SQLSlowRecord	None	The information of the slow SQL query, which is an array of SQLSlowRecord data.
SQLSlowRecord	None	None	None
DBName	String	test	The name of the database.
ExecutionStartTime	String	2018-07-09T09:00:08Z	The beginning of the time range within which the query is executed. The time follows the ISO 8601 standard in the YYYY-MM-DDTHH:mm:ssZ format. The time is displayed in UTC. Example: 2011-06-11T15:00:08Z.

Parameter	Type	Example	Description
HostAddress	String	127.0.0.1	The IP address of the host that is used to connect to the database.
LockTimes	Long	12	The lock duration of the query. Unit: seconds.
ParseRowCounts	Long	125	The number of parsed rows.
QueryTimes	Long	123	The execution duration of the query. Unit: seconds.
ReturnRowCounts	Long	1	The number of returned rows.
SQLText	String	update test.zxb set id=0 limit 1	The SQL query statement.
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	1	The number of slow SQL queries on the current page.
RequestId	String	542BB8D6-4268-45CC-A557-B03EFD7AB30A	The ID of the request.
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeSlowLogRecords
&DBInstanceId=gp-xxxxxxx
&EndTime=2018-07-19T09:00:08Z
&StartTime=2018-07-09T09:00:08Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSlowLogRecordsResponse>
      <RequestId>542BB8D6-4268-45CC-A557-B03EFD7AB30A</RequestId>
      <Engine>gpdb</Engine>
      <PageNumber>1</PageNumber>
      <PageRecordCount>1</PageRecordCount>
      <TotalRecordCount>1</TotalRecordCount>
      <Items>
            <SQLSlowRecord>
                  <HostAddress>127.0.0.1</HostAddress>
                  <DBName>test</DBName>
                  <SQLText> update test.zxb set id=0 limit 1</SQLText>
                  <QueryTimes>123</QueryTimes>
                  <LockTimes>12</LockTimes>
                  <ParseRowCounts>125</ParseRowCounts>
                  <ReturnRowCounts>1</ReturnRowCounts>
                  <ExecutionStartTime>2018-07-09T09:00:08Z</ExecutionStartTime>
            </SQLSlowRecord>
      </Items>
</DescribeSlowLogRecordsResponse>
```

`JSON` format

```
{
    "RequestId":"542BB8D6-4268-45CC-A557-B03EFD7AB30A",
    "Engine":"gpdb",
    "PageNumber":1,
    "PageRecordCount":1,
    "TotalRecordCount":1,
    "Items":{
        "SQLSlowRecord":[
            {
                "HostAddress":"127.0.0.1",
                "DBName":"test",
                "SQLText":" update test.zxb set id=0 limit 1",
                "QueryTimes":"123",
                "LockTimes":"12",
                "ParseRowCounts":"125",
                "ReturnRowCounts":"1",
                "ExecutionStartTime":"2018-07-09T09:00:08Z"
            }
        ]
    }
}
```

10.1.2.10.3. DescribeSQLLogFiles

You can call this operation to query the list of SQL audit log files.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSQLLogFiles	The operation that you want to perform. Set the value to DescribeSQLLogFiles.
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.
FileName	String	No	log20200202	The name of the file.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30
PageNumber	Integer	No	1	The number of the page to return. Valid values: any non-zero positive integer. Default value: 1.

Response parameters

Parameter	Type	Example	Description
Items	Array of LogFile	None	The information of the log file, which is an array of LogFile data.
LogFile	None	None	None
FileID	String	1023423423	The ID of the file.
LogDownloadURL	String	xxxxxx	The URL that is used to download the file. If the URL is unavailable, an empty string is returned.
LogEndTime	String	2019-02-24T14:10Z	The end of the time range within which data is recorded in the file.
LogSize	String	100210	The size of the file. Unit: bytes.
LogStartTime	String	2019-02-24T12:10Z	The beginning of the time range within which data is recorded in the file.

Parameter	Type	Example	Description
LogStatus	String	Success	The status of the file. Valid values: • NoStart • Generating • Success • Failed
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	1	The number of entries on the current page.
RequestId	String	66E164C1-D7F2-4D85-849D-E2883FCFFBA5	The ID of the request.
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeSQLLogFiles
&DBInstanceId=gp-xxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSQLLogFilesResponse>
  <Items>
        <LogFile>
              <FileID>1023423423</FileID>
              <LogDownloadURL>xxxxxxx</LogDownloadURL>
              <LogEndTime>2019-02-24T14:10Z</LogEndTime>
              <LogSize>100210</LogSize>
              <LogStartTime>2019-02-24T12:10Z</LogStartTime>
              <LogStatus>Success</LogStatus>
        </LogFile>
  </Items>
  <PageNumber>1</PageNumber>
  <TotalRecordCount>1</TotalRecordCount>
  <RequestId>66E164C1-D7F2-4D85-849D-E2883FCFFBA5</RequestId>
  <PageRecordCount>1</PageRecordCount>
</DescribeSQLLogFilesResponse>
```

`JSON` format

```
{
    "Items": {
        "LogFile": [
            {
                "FileID": "1023423423",
                "LogDownloadURL": "xxxxxxx",
                "LogEndTime": "2019-02-24T14:10Z",
                "LogSize":"100210",
                "LogStartTime": "2019-02-24T12:10Z",
                "LogStatus": "Success"
            }
        ]
    },
    "PageNumber": 1,
    "TotalRecordCount": 1,
    "RequestId": "66E164C1-D7F2-4D85-849D-E2883FCFFBA5",
    "PageRecordCount": 1
}
```


10.1.2.10.4. ModifySQLCollectorPolicy

You can call this operation to enable or disable the SQL collection feature for an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySQLCollectorPolicy	The operation that you want to perform. Set the value to ModifySQLCollectorPolicy.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
SQLCollectorStatus	String	Yes	Enable	Specifies whether to enable or disable SQL collection. • Enable: enables SQL collection. • Disabled: disables SQL collection.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4FA1F1D1-50A6-4F60-9A78-5752F2076A53	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifySQLCollectorPolicy
&DBInstanceId=gp-xxxxxxxx
&SQLCollectorStatus=Enable
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySQLCollectorPolicyResponse>
          <RequestId>4FA1F1D1-50A6-4F60-9A78-5752F2076A53</RequestId>
</ModifySQLCollectorPolicyResponse>
```

`JSON` format

```
{
  "RequestId":"4FA1F1D1-50A6-4F60-9A78-5752F2076A53"
}
```

10.1.2.10.5. DescribeSQLLogRecords

You can call this operation to query the SQL audit logs generated for an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSQLLogRecords	The operation that you want to perform. Set the value to DescribeSQLLogRecords.
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.
EndTime	String	Yes	2018-07-09T08:50:20Z	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. The end time must be later than the start time.
StartTime	String	Yes	2018-07-09T04:50:20Z	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.

Parameter	Type	Required	Example	Description
QueryKeywords	String	No	keywords1	The keywords that are used for queries. Separate multiple keywords with spaces. The maximum number of keywords is 10.
Database	String	No	testdb	The name of the database to be queried. By default, all databases are queried.
User	String	No	testacc	The username of the database. By default, all users are selected.
Form	String	No	Stream	Specifies whether to generate SQL audit log files or return SQL audit log records. Default value: Stream. Valid values: • File: generates audit log files. If you set this parameter to File, only common response parameters are returned. Therefore, you need to call the DescribeSQLLogFiles operation to obtain the download URL of audit log files. • Stream: generates data streams.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: 30, 50, and 100. Default value: 30.
PageNumber	Integer	No	1	The number of the page to return. Valid values: any non-zero positive integer. Default value: 1.

Response parameters

Parameter	Type	Example	Description
Items	Array of SQLRecord	None	The information of SQL queries, which is an array of SQLRecord data.
SQLRecord	None	None	None

Parameter	Type	Example	Description
AccountName	String	testacc	The account name.
DBName	String	testdb	The name of the database.
ExecuteTime	String	2018-07-09T08:50:20Z	The time when the statement is executed. The time follows the ISO 8601 standard in the `yyyy-MM-ddTHH:mm:ssZ` format. The time is displayed in UTC. Example: 2011-05-30 T12:11:20Z.
HostAddress	String	127.0.0.1	The IP address of the client.
ReturnRowCounts	Long	122	The number of returned entries.
SQLText	String	update test.zxb set id=0 limit 1	The SQL statement that is recorded in the log.
ThreadID	String	723	The ID of the thread.
TotalExecutionTimes	Long	130	The execution duration of the SQL statement. Unit: microseconds.
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	1	The number of SQL audit log records on the current page.
RequestId	String	9B24F29F-BA7F-47A3-838E-C6A993888388	The ID of the request.
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeSQLLogRecords
&DBInstanceId=gp-xxxxxxx
&StartTime=2018-07-09T04:50:20Z
&EndTime=2018-07-09T08:50:20Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSQLLogRecords>
  <Items>
        <SQLRecord>
              <AccountName>testacc</AccountName>
              <DBName>testdb</DBName>
              <ExecuteTime>2018-07-09T08:50:20Z</ExecuteTime>
              <HostAddress>127.0.0.1</HostAddress>
              <ReturnRowCounts>122</ReturnRowCounts>
              <SQLText>update test.zxb set id=0 limit 1</SQLText>
              <ThreadID>723</ThreadID>
              <TotalExecutionTimes>130</TotalExecutionTimes>
        </SQLRecord>
  </Items>
  <TotalRecordCount>1</TotalRecordCount>
  <PageNumber>1</PageNumber>
  <RequestId>9B24F29F-BA7F-47A3-838E-C6A993888388</RequestId>
  <PageRecordCount>1</PageRecordCount>
</DescribeSQLLogRecords>
```

`JSON` format

```
{
    "Items": {
        "SQLRecord": [
            {
                "AccountName": "testacc",
                "DBName": "testdb",
                "ExecuteTime": "2018-07-09T08:50:20Z",
                "HostAddress": "127.0.0.1",
                "ReturnRowCounts": "122",
                "SQLText": "update test.zxb set id=0 limit 1",
                "ThreadID": "723",
                "TotalExecutionTimes": "130"
            }
        ]
    },
    "TotalRecordCount": 1,
    "PageNumber": 1,
    "RequestId": "9B24F29F-BA7F-47A3-838E-C6A993888388",
    "PageRecordCount": 1
}
```

10.1.2.11. Network management

10.1.2.11.1. AllocateInstancePublicConnection

You can call this operation to specify a public endpoint of the instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	No	AllocateInstancePublicConnection	The operation that you want to perform. Set the value to AllocateInstancePublicConnection.
ConnectionStringPrefix	String	Yes	gp-xxxxxxxx	The endpoint of the instance.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
Port	String	Yes	3432	The port associated with the endpoint. Valid values: 3200 to 3999.

Response parameters

Parameter	Type	Example	Description
RequestId	String	ADD6EA90-EECB-4C12-9F26-0B6DB58710EF	The ID of the request.

Examples

Sample requests

```
http(s)://gpdb.aliyuncs.com/? Action=AllocateInstancePublicConnection
&ConnectionStringPrefix=gp-xxxxxxxx
&DBInstanceId=gp-xxxxxxxx
&Port=3432
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>ADD6EA90-EECB-4C12-9F26-0B6DB58710EF</RequestId>
```

`JSON` format

```
{
    "RequestId": "ADD6EA90-EECB-4C12-9F26-0B6DB58710EF"
}
```

10.1.2.11.2. DescribeDBInstanceNetInfo

You can call this operation to query the connection information of an instance.

Request parameters

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	gp-xxxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
DBInstanceNetInfos	Array of DBInstanceNetInfo	None	The connection information of the instance.
DBInstanceNetInfo	None	None	None
ConnectionString	String	gp-xxxxxxx.gpdb.rds.aliyuncs.com	The URL of the database.
IPAddress	String	127.0.0.1	The IP address of the instance.
IPType	String	Inner	The type of IP address. • Valid values for instances in the classic network: Inner and Public • Valid values for instances in a VPC: Private and Public
Port	String	3432	The port information.
VPCId	String	vpc-xxxxxxx	The ID of the VPC.
VSwitchId	String	vsw-xxxxxxxx	The ID of the vSwitch. Multiple IDs are separated by commas (,).

Parameter	Type	Example	Description
InstanceNetworkType	String	Classic	The network type of the instance. Valid values: • Classic • VPC
RequestId	String	7565770E-7C45-462D-BA4A-8A5396F2CAD1	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=DescribeDBInstanceNetInfo
&DBInstanceId=gp-xxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceNetInfoResponse>
  <instanceNetworkType>Classic</instanceNetworkType>
  <DBInstanceNetInfos>
        <DBInstanceNetInfo>
              <DBInstanceNetType>1</DBInstanceNetType>
              <connectionString>gp-xxxxxxx.gpdb.rds.aliyuncs.com</connectionString>
              <ipAddress>127.0.0.1</ipAddress>
              <port>3432</port>
              <VPCId>vpc-xxxxxxxxx</VPCId>
              <VSwitchId>vsw-xxxxxxx</VSwitchId>
        </DBInstanceNetInfo>
  </DBInstanceNetInfos>
  <RequestId>7565770E-7C45-462D-BA4A-8A5396F2CAD1</RequestId>
</DescribeDBInstanceNetInfoResponse>
```

`JSON` format

```
{
    "instanceNetworkType": "Classic",
    "DBInstanceNetInfos": {
        "DBInstanceNetInfo": [
            {
                "DBInstanceNetType": "1",
                "connectionString": "gp-xxxxxxx.gpdb.rds.aliyuncs.com",
                "ipAddress": "127.0.0.1",
                "port": "3432",
                "VPCId": "vpc-xxxxxxxxx",
                "VSwitchId": "vsw-xxxxxxx"
            }
        ]
    },
    "RequestId": "7565770E-7C45-462D-BA4A-8A5396F2CAD1"
}
```


10.1.2.11.3. ModifyDBInstanceConnectionString

You can call this operation to modify the internal or public endpoint of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceConnectionString	The operation that you want to perform. Set this parameter to ModifyDBInstanceConnectionString.
ConnectionStringPrefix	String	Yes	gp-xxxxxxxx	The endpoint to be used by the instance.
CurrentConnectionString	String	Yes	gp-xxxxxxx.gpdb.rds.aliyuncs.com	The endpoint used by the instance.
DBInstanceId	String	Yes	gp-xxxxxxx	The ID of the instance.
Port	String	Yes	3432	The port to be used by the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	29B0BF34-D069-4495-92C7-FA6D94528A9E	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyDBInstanceConnectionString
&ConnectionStringPrefix=gp-xxxxxxxx
&CurrentConnectionString=gp-xxxxxxx.gpdb.rds.aliyuncs.com
&DBInstanceId=gp-xxxxxxx
&Port=3432
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceConnectionStringResponse>
          <RequestId>29B0BF34-D069-4495-92C7-FA6D94528A9E</RequestId>
</ModifyDBInstanceConnectionStringResponse>
```

`JSON` format

```
{
 "RequestId": "29B0BF34-D069-4495-92C7-FA6D94528A9E"
}
```

10.1.2.11.4. ModifyDBInstanceNetworkType

You can call this operation to switch the network type of an instance between VPC and classic network.

Request parameters

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.
InstanceNetworkType	String	Yes	VPC	The network type of the instance. Valid values: • VPC • Classic
VPCId	String	No	vpc-xxxxxxxx	The ID of the VPC.
VSwitchId	String	No	vsw-xxxxxxxx	The ID of the vSwitch. This parameter is required when the VPCId parameter is specified.

Parameter	Type	Required	Example	Description
PrivateIpAddress	String	No	192.168.0.10	The private IP address of the instance. You can specify an IP address of the VPC to which the vSwitch belongs. If no IP address is specified, the system assigns an IP address based on the VPC ID and vSwitch ID.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2d0c35a9-f5da-44ba-852d-741e27b7eb0b	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ModifyDBInstanceNetworkType
&DBInstanceId=gp-xxxxxxxx
&InstanceNetworkType=VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceNetworkTypeResponse>
          <RequestId>2d0c35a9-f5da-44ba-852d-741e27b7eb0b</RequestId>
</ModifyDBInstanceNetworkTypeResponse>
```

`JSON` format

```
{
  "RequestId":"2d0c35a9-f5da-44ba-852d-741e27b7eb0b"
}
```

10.1.2.11.5. ReleaseInstancePublicConnection

You can call this operation to release the public endpoint of an instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
CurrentConnectionString	String	Yes	gp-xxxxxxx.gpdb.rds.aliyuncs.com	The public endpoint of the instance.
DBInstanceId	String	Yes	gp-xxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9CEF7037-4158-4A65-BEC7-2A1541F6FE74	The ID of the request.

Examples

Sample requests

```
https://gpdb.aliyuncs.com/?Action=ReleaseInstancePublicConnection
&CurrentConnectionString=gp-xxxxxxx.gpdb.rds.aliyuncs.com
&DBInstanceId=gp-xxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleaseInstancePublicConnectionResponse>
          <RequestId>9CEF7037-4158-4A65-BEC7-2A1541F6FE74</RequestId>
</ReleaseInstancePublicConnectionResponse>
```

`JSON` format

```
{
   "RequestId": "9CEF7037-4158-4A65-BEC7-2A1541F6FE74"
}
```

10.1.2.11.6. SwitchDBInstanceNetType

You can call this operation to switch between internal and public endpoints.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	SwitchDBInstanceNetType	The operation that you want to perform. Set the value to SwitchDBInstanceNetType.
ConnectionStringPrefix	String	Yes	test1234	The prefix of the custom endpoint. • The prefix can be up to 30 characters in length and can contain letters, digits, and hyphens (-). It must start with a letter. •
DBInstanceId	String	Yes	rm-uf6wjk5xxxxxxx	The ID of the instance.
Port	String	Yes	3306	The port associated with the endpoint. Valid values: 3001 to 3999.

Response parameters

Parameter	Type	Example	Description
RequestId	String	FA67B751-2A2D-470C-850B-D6B93699D35C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=SwitchDBInstanceNetType
&ConnectionStringPrefix=test1234
&DBInstanceId=rm-uf6wjk5xxxxxxx
&Port=3306
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>FA67B751-2A2D-470C-850B-D6B93699D35C</RequestId>
```

`JSON` format

```
{"RequestId":"FA67B751-2A2D-470C-850B-D6B93699D35C"}
```

10.1.2.12. Tag management

10.1.2.12.1. TagResources

You can call this operation to create tags and bind the tags to specific instances.

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID.
ResourceId.N	RepeatList	Yes	dbaudit-cn-78v1gcxxxxx	The ID of instance N. Valid values of N: 1 to 20.
ResourceType	String	Yes	INSTANCE	The type of the resource. Set the value to INSTANCE. INSTANCE indicates the reserved storage mode instance.
Tag.N.Key	String	No	test	The key of tag N. Valid values of N: 1 to 20. The tag key cannot be an empty string. The tag key can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.
Tag.N.Value	String	No	testapi	The value of tag N. Valid values of N: 1 to 20. The tag value can be an empty string. The tag key can be up to 128 characters in length and cannot contain http:// or https://. It cannot start with acs: or aliyun.

Response parameters

Parameter	Type	Example	Description
RequestId	String	23DD5EDB-EAC7-44A5-A68E-798BB085D27F	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=TagResources
&RegionId=cn-hangzhou
&ResourceId.1=dbaudit-cn-78v1gcxxxxx
&ResourceType=INSTANCE
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>23DD5EDB-EAC7-44A5-A68E-798BB085D27F</RequestId>
```

`JSON` format

```
{"RequestId":"23DD5EDB-EAC7-44A5-A68E-798BB085D27F"}
```

10.1.2.12.2. ListTagResources

You can call this operation to query tags that are bound to one or more instances.

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.
ResourceType	String	Yes	instance	The type of the resource. Valid values: • `instance`: reserved storage mode • `ALIYUN::GPDB::INSTANCE`: elastic storage mode
ResourceId.N	RepeatList	No	gp-xxxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	TestKey	The key of tag N. The tag key can contain 1 to 128 characters in length. Valid values of N: 1 to 20. You can use `Tag.N` to query instances that have specific tags bound. Tag.N consists of Tag.N.Key and Tag.N.Value. • If you specify only `Tag.N.Key`, the instances that contain all the specified tag keys are returned. • If you specify only `Tag.N.Value`, `InvalidParameter.TagValue` is returned. • If you specify multiple tag key-value pairs at a time, the instances that contain all the specified tag keys are returned.
Tag.N.Value	String	No	TestValue	The value of tag N. The tag value can contain 1 to 128 characters in length. Valid values of N: 1 to 20.
NextToken	String	No	caeba0bbb2be03f84eb48b699f0a4883	The token used to perform the next query.

Response parameters

Parameter	Type	Example	Description
NextToken	String	caeba0bbb2be03f84eb48b699f0a4883	The token that was returned for the next query.
RequestId	String	5414A4E5-4C36-4461-95FC-23757A20B5F8	The ID of the request.
TagResources	Array of TagResource	None	The information of instances and tags, including the instance IDs,resource types, and tag key-value pairs, which is an array of TagResource data.
TagResource	None	None	None
ResourceId	String	gp-xxxxxxxxxx	The ID of the instance.

Parameter	Type	Example	Description
ResourceType	String	instance	The type of the resource.
TagKey	String	TestKey	The tag key of the instance.
TagValue	String	TestValue	The tag value of the instance.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ListTagResources
&RegionId=cn-hangzhou
&ResourceType=instance
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>5414A4E5-4C36-4461-95FC-23757A20B5F8</RequestId>
<NextToken>caeba0bbb2be03f84eb48b699f0a4883</NextToken>
<TagResources>
    <TagResource>
        <ResourceId>gp-xxxxxxxxxx</ResourceId>
        <TagKey>TestKey</TagKey>
        <ResourceType>instance</ResourceType>
        <TagValue>TestValue</TagValue>
    </TagResource>
</TagResources>
```

`JSON` format

```
{
    "RequestId": "5414A4E5-4C36-4461-95FC-23757A20B5F8",
    "NextToken": "caeba0bbb2be03f84eb48b699f0a4883",
    "TagResources": {
        "TagResource": {
            "ResourceId": "gp-xxxxxxxxxx",
            "TagKey": "TestKey",
            "ResourceType": "instance",
            "TagValue": "TestValue"
        }
    }
}
```

10.1.2.12.3. UntagResources

You can call this operation to unbind tags from specified instances and delete the tags at a time.

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID.
ResourceId.N	RepeatList	Yes	dbaudit-cn-test	The ID of instance N. Valid values of N: 1 to 20.
ResourceType	String	Yes	INSTANCE	The type of the resource. Set the value to INSTANCE. INSTANCE indicates reserved storage mode instance.
TagKey.N	RepeatList	No	456	The key of tag N. Valid values of N: 1 to 20.
All	Boolean	No	false	Specifies whether to unbind all tags from the instances. • When the TagKey.N parameter is specified, set the All parameter to false to unbind the specified tags from the instances. • When the TagKey.N parameter is not specified, set the All parameter to true to unbind all tags from the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8EC13467-A84C-401F-A4A0-AF893066FBA1	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UntagResources
&RegionId=cn-hangzhou
&ResourceId.1=dbaudit-cn-test
&ResourceType=INSTANCE
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>8EC13467-A84C-401F-A4A0-AF893066FBA1</RequestId>
```

`JSON` format

```
{"RequestId":"8EC13467-A84C-401F-A4A0-AF893066FBA1"}
```

10.1.2.12.4. DescribeTags

You can call this operation to query the tags of an instance.

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The region ID of the instance.
ResourceType	String	Yes	instance	The type of the resource.

Response parameters

Parameter	Type	Example	Description
RequestId	String	65BDA532-28AF-4122-AA39-B382721EEE64	The ID of the request.
Tags	Array of Tag		The information of the tag, which is an array of tag key and tag value.
TagKey	String	user	The tag key of the instance.
TagValue	String	admin	The tag value of the instance.

Examples

Sample requests

```
http(s)://gpdb.aliyuncs.com/? Action=DescribeTags
&RegionId=cn-hangzhou
&ResourceType=instance
```

Sample success responses

`XML` format

```
<RequestId>65BDA532-28AF-4122-AA39-B382721EEE64</RequestId>
<Tags>
    <TagKey>test</TagKey>
    <TagValue>admin</TagValue>
</Tags>
```

`JSON` format

```
{
    "RequestId": "65BDA532-28AF-4122-AA39-B382721EEE64",
    "Tags": [
        {
            "TagKey": "test",
            "TagValue": "admin"
        }
    ]
}
```

10.1.2.13. Appendix

10.1.2.13.1. Error codes

10.1.2.13.1.1. Client error codes

Common errors

Error code	Description	HTTP status code
MissingParameter	The input parameter "parameter name" that is mandatory for processing this request is not supplied.	400
InvalidParameter	The specified parameter "Action or Version" is not valid.	400
InvalidAccessKeyId.NotFound	The Access Key ID provided does not exist in our records.	404
IncompleteSignature	The request signature does not conform to Aliyun standards.	400
IllegalTimestamp	The input parameter "Timestamp" that is mandatory for processing this request is not supplied.	400
InvalidOwnerId	The specified OwnerId is not valid.	400
InvalidOwnerAccount	The specified OwnerAccount is not valid.	400

Error code	Description	HTTP status code
InvalidOwner	OwnerId and OwnerAccount can't be used at one API access.	400
Throttling	Request was denied due to request throttling.	400
InvalidAction	The specified action is not valid.	403
ActionUnauthorized	The specified action is not available for you	403
UnsupportedHTTPMethod	This http method not supported.	403
UnsupportedParameter	The parameter "<parameter name>" is not supported.	400
Forbidden.InstanceNotFound	The specified DB instance does not exist.	404
Forbidden.RAM	The user is not authorized to operate the specified resource, or this operation does not support RAM.	403
Forbedden.NotSupportRAM	This action does not support accessed by RAM mode.	403
Forbidden.RiskControl	This operation is forbidden by Aliyun Risk Control system.	403
InsufficientBalance	Your account does not have enough balance.	400
Forbidden.Authentication	This operation is forbidden by Aliyun Realname Authentication system.	403
Invalid<parameter name>.ValueNotSupported	The specified parameter "parameter name" is not valid.	400
Invalid<parameter name>.Malformed	The specified parameter "parameter name n" is not valid.	400
InvalidParameter	The specified parameter "parameter name n" is not valid.	400

Specific errors

Error code	Description	HTTP status code
InvalidRegionId.NotFound	The DBInstanceId provided does not exist in our records.	404
InvalidSecurityIPList.Duplicate	The Security IP address is not in the available range or occupied.	400

Error code	Description	HTTP status code
InvalidSecurityIPListLength.Malformed	The security IP address is beyond the available range or is already used.	400
InvalidEngineVersionInRegion.NotAvailable	The EngineVersion in the Region is not available.	403
InvaildEngineInRegion.NotAvailable	The Engine in the Region is not available.	403
InvaildDBInstanceClassInRegion.NotAvailable	The DBInstanceClass in the Region is not available.	403
OperationDenied	The resource is out of usage.	403
RegionUnauthorized	There is no authority to create instance in the specified region.	403
QuotaExceeded.CreateInstance	The quota of create instance exceeds.	403
InvalidDBInstanceId.NotFound	The specified DBInstanceId does not exist.	404
MissingParameter	The input parameters "DBInstanceClass" and "DBInstanceStorage" all blank or no change.	400
OperationDenied.DBInstanceType	The operation is not permitted due to type of instance.	400
OperationDenied.DBInstanceStorageReduce	The operation is not permitted due to reduce storage.	403
OperationDenied.DBInstanceStatus	The operation is not permitted due to instance status.	403
DependencyViolation	The operation is not permitted due to instance mount read only or guard instance.	403
InvalidConnectionStringPrefix.Duplicate	The connection string is not in the available range or occupied.	400
QuotaExceeded.SwitchTime	The quota of switch time exceed.	400
OperationDenied.LockMode	The operation is not permitted due to lock of instance.	403
InvalidSecurityIps.Duplicate	The quota of security ip exceeds.	400
OperationDenied.CurrentEngineVersion	The operation is not permitted due to specified current version.	400

Error code	Description	HTTP status code
OperationDenied.ReadOnlyDBInstanceLower	The operation is not permitted due to higher read only instance version .	403
OperationDenied.GuardDBInstanceLower	The operation is not permitted due to higher guard instance version .	403
OperationDenied.MasterDBInstanceState	The status of the specified master instance does not support this operation.	403
QuotaExceeded.DBName	The quota of db exceeds.	400
InvalidDBName.Duplicate	The specified DB name is invalid or already exists.	400
InvalidParameter.Keyword	The specified DBName is a reserved keyword.	400
OperationDenied.DBStatus	The status of the database does not support this operation.	403
OperationDenied.DBInstanceEngine	The operation is not permitted due to engine of instance.	403
FTPServiceUnavailable	The service is unavailable now; wait several minutes and try again.	403
QuotaExceeded.Upload	The quota of file exceeds.	403
InvalidFileName.NotCompleted	The specified "FileName" is not completed .	404
InvalidFileName.NotAvailable	The specified "FileName" is not Available .	404
QuotaExceeded.FileSize	The quota of file size exceeds.	403
QuotaExceeded.DBInstanceStorage	The quota of instance storage exceeds.	403
InvalidDBInfo.Malformed	The specified parameter "DBInfo" is not valid or db not exist.	400
OperationDenied.Region	The operation is not permitted due to different region.	403
OperationDenied.Engine	The operation is not permitted due to different engine.	403
OperationDenied.DBInstanceId	The operation is not permitted due to DBInstanceId and SourceDBInstanceId is same.	403

Error code	Description	HTTP status code
InvalidTaskId.NotFound	The ImportId provided does not exist in our records.	400
OperationDenied.IncorrectTaskStatus	The operation is not permitted due to status of import.	403
InvalidAccountName.keyword	The specified AccountName is a reserved keyword.	400
InvalidAccountName.Duplicate	The specified AccountName already exists.	400
QuotaExceeded.AccountName	The quota of account exceeds.	403
OperationDenied.AccountStatus	The status of the account does not support this operation.	403
InvalidDBName.NotFound	The specified database does not exist.	404
OperationDenied.AccountType	The operation is not permitted due to type of account.	403
OperationDenied.BackupJobExists	You cannot perform this operation; a backup job exists.	403
OperationDenied.NoDatabase	The operation is not permitted due to no database.	403
InvalidStartTimeAndEndTime.Malformed	The EndTime must be later than or equal to the StartTime.	400
OperationDenied.BackupJobExists	You cannot perform this operation; a backup job exists.	403
InvalidBackupId.NotFound	The BackupId provided does not exist in our records.	404
OperationDenied.NotFoundBackup	The operation is not permitted due to no backup.	403
OperationDenied.BackupStatus	The operation is not permitted due to type of backup.	403
OperationDenied.BackupMethod	The operation is not permitted method of backup.	403
OperationDenied.TempDBInstanceExists	You cannot perform this operation; a temp instance exists.	403
Forbidden.Authentication	The operation is forbidden by Aliyun Realname Authentication System.	403

Error code	Description	HTTP status code
IncorrectDBInstanceConnType	Current DB instance conn type does not support this operation.	404
IncorrecttVpcId.Mismatch	The specified parameter "VpcId" is not valid.	400
IntranetNetTypeNotExists	Current DB instance net type does not support this operation.	404
InvalidDBInstanceName.NotFound	The DBInstanceId provided does not exist in our records.	403
InvalidConnectionMode.ValueNotSupported	The specified parameter "ConnectionMode" is not valid.	400
InvalidConnectionString.Duplicate Specified	connection string already exists in the Aliyun RDS.	403
InvalidConnectionString.Duplicate Specified	connection string or port want to be modified is the same with current net type.	400
InvalidConnectionStringPrefix.Duplicated	The specified connection string already exists.	403
InvalidCurrentConnectionString.NotFound	Specified current connection string doesn't exist.	400
InvalidDBInstanceId.NotFound	The specified DBInstanceId does not exist.	400
InvalidDBInstanceId.QuotaExceeded	The quota of instance id exceeds.	400
InvalidDBInstanceNetType.NotFound	The Specified DB instance net type is not found.	404
InvalidDBinstanceNetType.ValueNotSupport	The specified parameter "DBinstanceNetType" is not valid.	400
InvalidDBInstanceType.ValueNotSupport	The specified parameter "DBInstanceType" is not valid.	400
InvalidEngineVersion.Malformed	The specified parameter "EngineVersion" is not valid.	400
InvalidInstanceNetworkType.ValueNotSupported	The specified parameter "InstanceNetworkType" is not valid.	400
InvalidParameter	The specified parameter "dbInstanceId" is not valid.	400
InvalidPort.Malformed	Specified port is not valid.	400

Error code	Description	HTTP status code
InvalidPrivateIpAddress.Duplicated	Specified private IP address is duplicated.	400
InvalidPrivateIpAddress.Mismatch	Specified private IP address is not in the CIDR block of virtual switch.	400
InvalidVPCId.NotFound	The specified connection string or port does not match the current network type.	400
InvalidVSwitchId.Mismatch	Specified instance and virtual switch are not in the same zone.	400
InvalidVSwitchId.NotFound	Specified virtual switch is not found in specified VPC.	400
NetTypeExists	Specified net type already existed.	400
NetTypeExists	Specified public net type already existed.	403
OperationDenied.DBInstanceNetType	The network type of the specified instance does not support this operation.	403
OperationDenied.DBInstanceStatus	The specified connection string or port does not match the current network type.	403
OperationDenied.DBInstanceType	The operation is not permitted due to type of instance.	403
OperationDenied.LockMode	The instance is locked.	403
OperationDenied.Switch	Specified instance cannot be switched.	400
OperationDenied.Switch	Specified instance cannot be switched to VPC.	403
OperationDenied.SwitchToVPC	Specified instance cannot be switched to VPC.	403
OperationDenied	The requested resource is sold out in the specified zone; try other types of resources or other regions and zones.	403
OperationDenied	The vpc cloudinstanceIp is use, please check params.	406
OperationDenied	The vpc service is error, please check params.	400
PARAMETER_ERROR	The vpc request parameter may not be null.	406
PARAMETER_MUST_NOT_NULL	The parameter must not be null.	406

Error code	Description	HTTP status code
PublicConnectionExists	PublicConnection exists.	403
bpcIzNoNotEqualsRdsMultIzNo	Specified vpc IzNo not equal rds IzNo.	400
IncorrectDBInstanceState	CurrentDB instance state does not support this operation.	403
IncorrectDBInstanceType	CurrentDB instance type does not support this operation.	400
IncorrectDBInstanceLockMode	CurrentDB instance lock mode does not support this operation.	400
ParamNotSupportedForCurrentVersion	Parameteris not supported for current version.	400
InvalideStatus.Format	MigrateTask Status is not valid.	400
EngineVersionNotSupported	EngineVersion specified cannot be replicate with the source DB Instance.	400
EngineNotSupported	Engine specified cannot be supported the operation..	400
ConnectionModeNotSupported	ConnectionMode specified cannot be replicate with the source DB Instance.	400
InvalidConfigurationValue.Malformed	Specified ConfigurationValue is not valid.	403
InvalidConfigurationValueStatus.Malformed	Specified ProxyConfigurationValue (status) is not valid..	403
InvalidConfigurationValueOrther.Malformed	Specified ProxyConfigurationValue (check_interval_seconds or max_failed_login_attempts or blocking_seconds) is not valid.	403
ProxyConnectionPersistExists	Specified same ProxyConnectionPersist already exists.	400
ProxyConnectionPersist.NotFound	Specified same ProxyConnectionPersist already exists.	400
ProxyConnectionPersist.NotFound	Specified ProxyConnectionPersist is not found.	400
ProxyConnectionPersistParametersInvalid	ProxyConnectionPersist parameter out of range	400

Error code	Description	HTTP status code
InvalidConfigValue	ProxyConnectionPersist parameter config table not exits or data error.	400
InvalidDBInstance.NotFound	Specified instance does not exist or not support.	400
ProxyConnectionPersist.NotFound	Specified ProxyConnectionPersist is not found.	400
ProxyConnectionPersistParametersInvalid	ProxyConnectionPersist parameter out of range.	400
InvalidConfigValue	parameter config table not exits or data error.	400

10.1.2.13.1.2. Server error codes

Error code	Error message	HTTP status code
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503
InternalError	The request processing has failed due to some unknown error, exception or failure. The request processing	500

10.1.2.13.2. Instance types

Instance types

Instance type	vCPU	Memory (MB)	Storage space (GB)	Storage space (Mbit/s)	Disk type
gpdb.group.segsdx1	1	8,192	80	150	SSD
gpdb.group.segsdx2	2	16,384	160	300	SSD
gpdb.group.segsdx16	16	131,072	1,280	2,400	SSD

10.1.2.13.3. Performance parameters

Performance parameters

API parameter	Description

API parameter	Description
Gpdb_IOPS	The input/output operations per second (IOPS) of the instance. It is in the data_iops&write_iops&read_iops format.
IOPSUsage	The IOPS usage rate of the instance.
CpuUsage	The CPU utilization of the instance.
ConnectionUsage	The connection usage rate of the instance.
Gpdb_session	The number of connections to the instance.
Gpdb_SpaceUsage	The disk usage of the instance. Unit: MB. It is in the ins_size&data_size&log_size&other_size format.
DiskUsage	The disk usage rate of the instance.
Gpdb_BPS	The bytes per second (BPS) size of the instance. Unit: byte. It is in the data_bps&write_bps&read_bps format.
BPSUsage	The BPS usage rate of the instance.
MemoryUsage	The memory usage rate of the instance.
Gpdb_memory	The memory usage of the instance. Unit: MB.

10.1.2.13.4. Instance states

Instance states

State	Description
Creating	The instance is being created.
Running	The instance is running.
Deleting	The instance is being deleted.
Rebooting	The instance is being restarted.
DBInstanceClassChanging	The instance specifications are being changed.
Transfering	The instance is being migrated.
EngineVersionUpgrading	The engine version is being upgraded.
TransferingToOtherInstance	The data is being migrated to other instances.
GuardDBInstanceCreating	The disaster recovery instance is being created.

State	Description
Restoring	The instance is being restored from a backup.
Importing	Data is being imported into the instance.
ImportingFromOtherInstance	Data is being imported into the instance from another instance.
DBInstanceNetTypeChanging	The network type is being changed.
GuardSwitching	The instance is undergoing a failover.

10.1.2.13.5. Terms

Terms

Term	Full name	Description
DBInstance	database instance	A database service process that takes up physical memory independently. You can configure different memory size and disk space. The memory size determines the performance of the instance, such as the IOPS and connections.
DBInstanceId	database instance ID	A globally unique name that identifies an instance.
Group	compute node	A compute node is the minimum computing and resource storage unit of an AnalyticDB for PostgreSQL database that you can purchase.
DBInstanceClass	compute node type	The types are as follows: • **gpdb.group.segsdx1**: 1 vCPU, 8 GB of memory, and 80 GB of SSD storage space. • **gpdb.group.segsdx2**: 2 vCPUs, 16 GB of memory, and 160 GB of SSD storage space. • **gpdb.group.segsdx16**: 16 vCPUs, 128 GB of memory, and 1.28 TB of SSD storage space. Each compute node consists of a primary node and a secondary node that have identical specifications.

Term	Full name	Description
DBInstanceGroupCount	node count	The number of compute nodes in the AnalyticDB for PostgreSQL instance that you have purchased. For example: If the value of DBInstanceClass is gpdb.group.segsdx2, the instance has two compute nodes. Total available resources: 4 vCPUs, 32 GB of memory, and 320 GB of SSD storage space. For resource and performance reasons, the valid value of DBInstanceGroupCount strictly corresponds to DBInstanceClass: • gpdb.group.segsdx1: 2 • gpdb.group.segsdx2: 2, 4, and 8 • gpdb.group.segsdx16: 2 and 4
DB Account	database account	An account identifies the access permissions on a database. A database can be created with multiple accounts, and an account can be associated with multiple databases.
AccountName	database account name	The name of a database account identifies the account. The name must be unique among all the database accounts that are in the same instance.
Region	region	The region indicates the data center in the specified region.

11.KVStore for Redis

11.1. Developer Guide

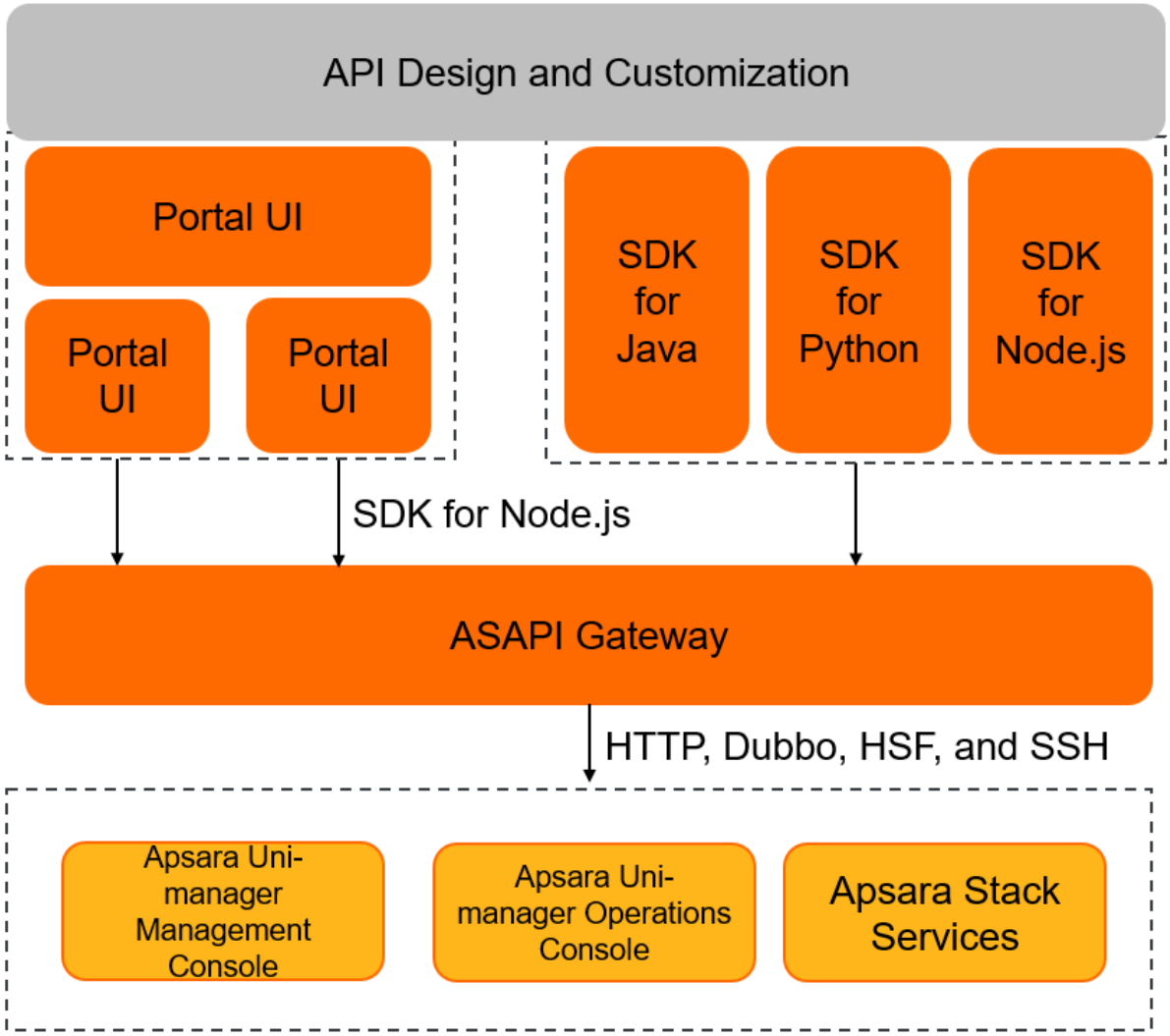
11.1.1. Call Apsara Stack SDK by using ASAPI

11.1.1.1. 文档标题缺失，请补全后重新导出

11.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

11.1.1.1.2. Preparations

11.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

11.1.1.1.2.2. View information about API operations

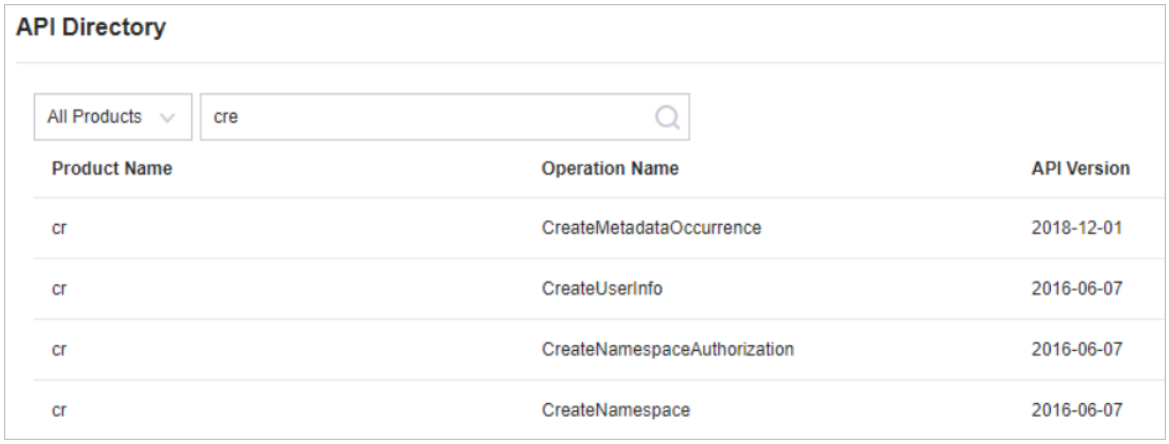
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



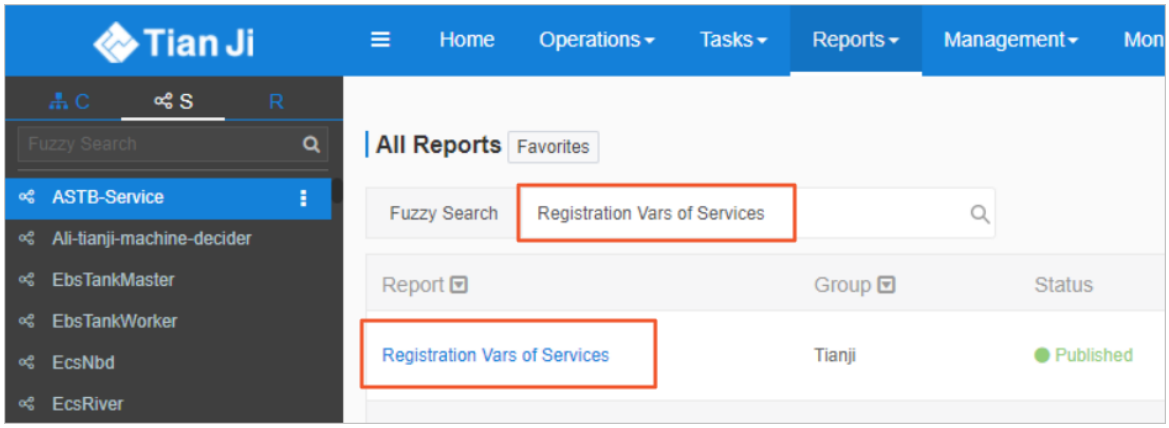
4. Then, you can view the service name, API operation name, and API operation version.

11.1.1.1.2.3. Generate an endpoint for the ASAPI

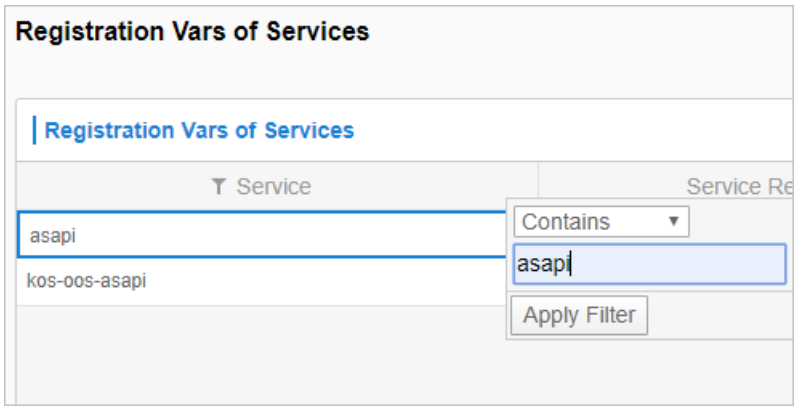
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

11.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

11.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

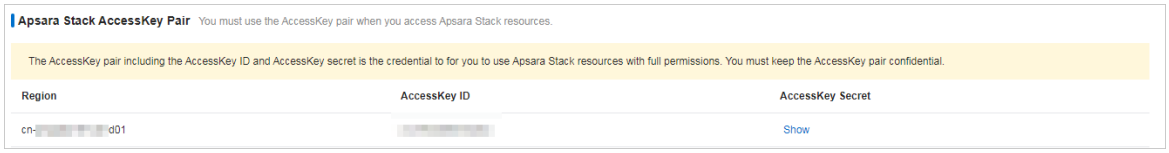
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

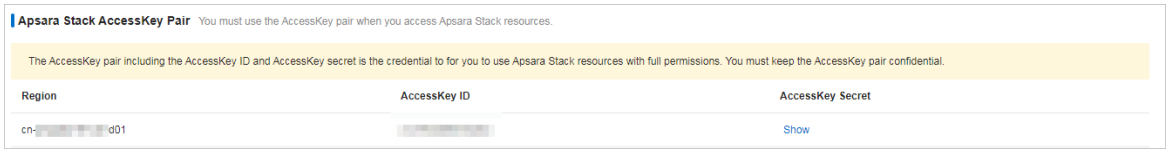
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

11.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



11.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

11.1.1.1.4. SDK description

11.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

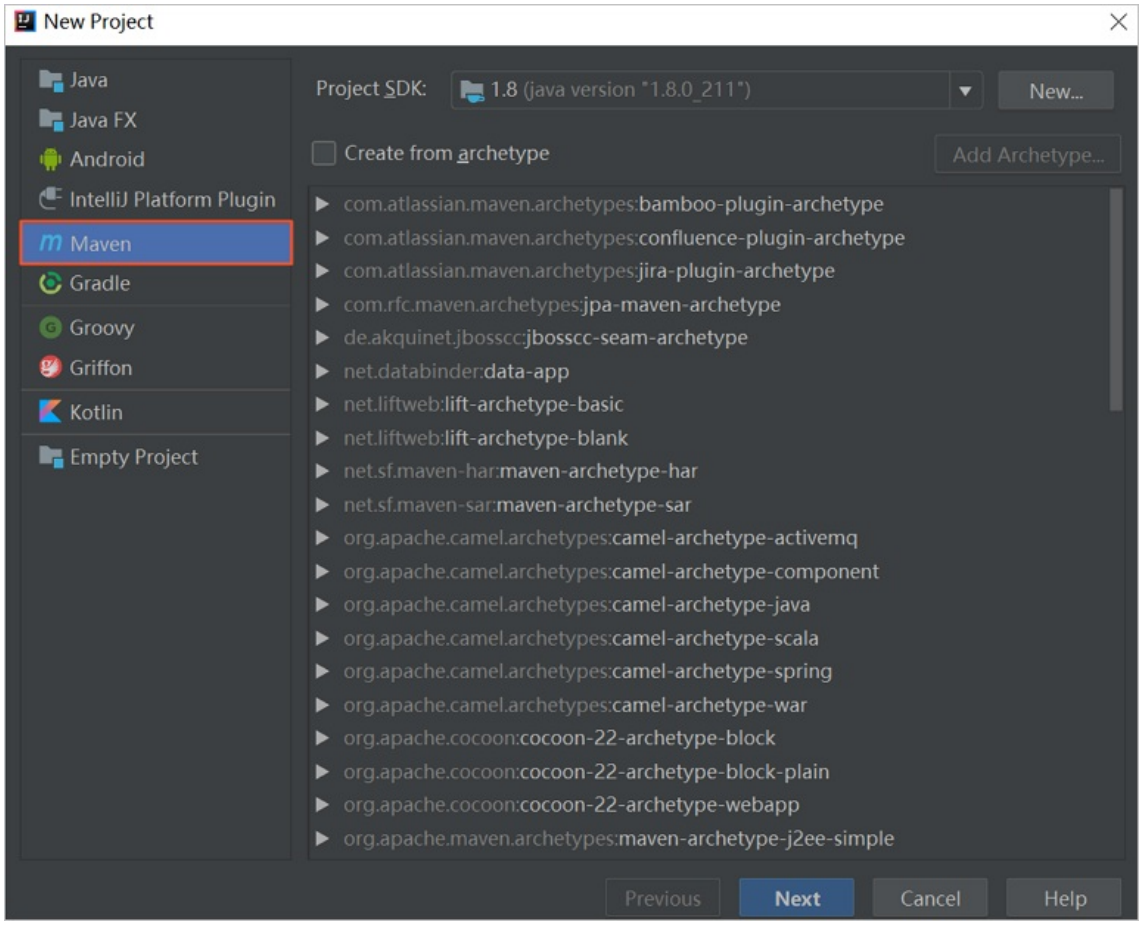
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

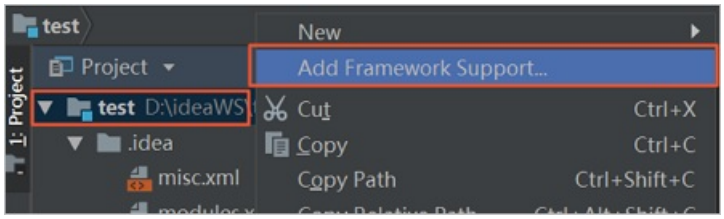
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

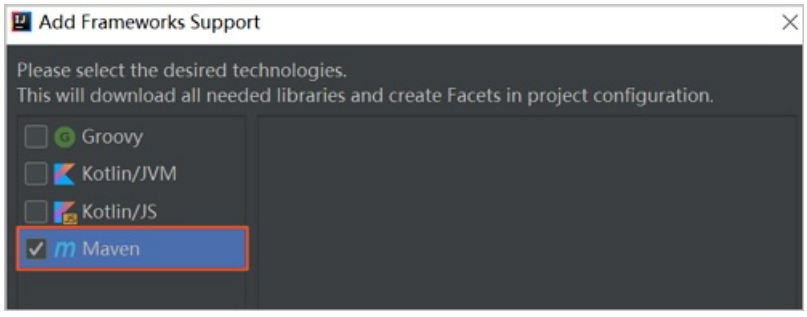
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



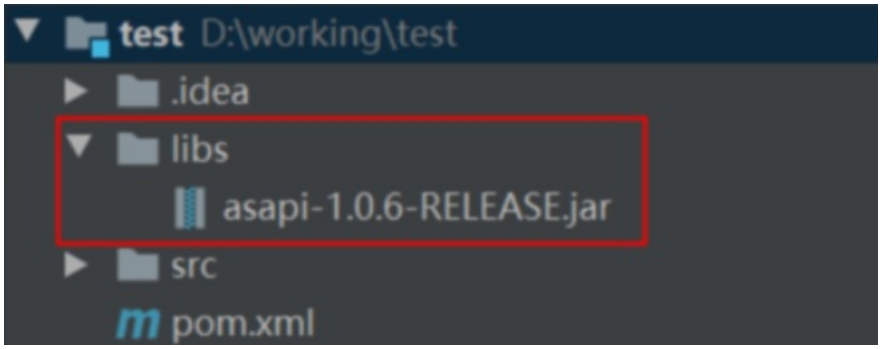
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



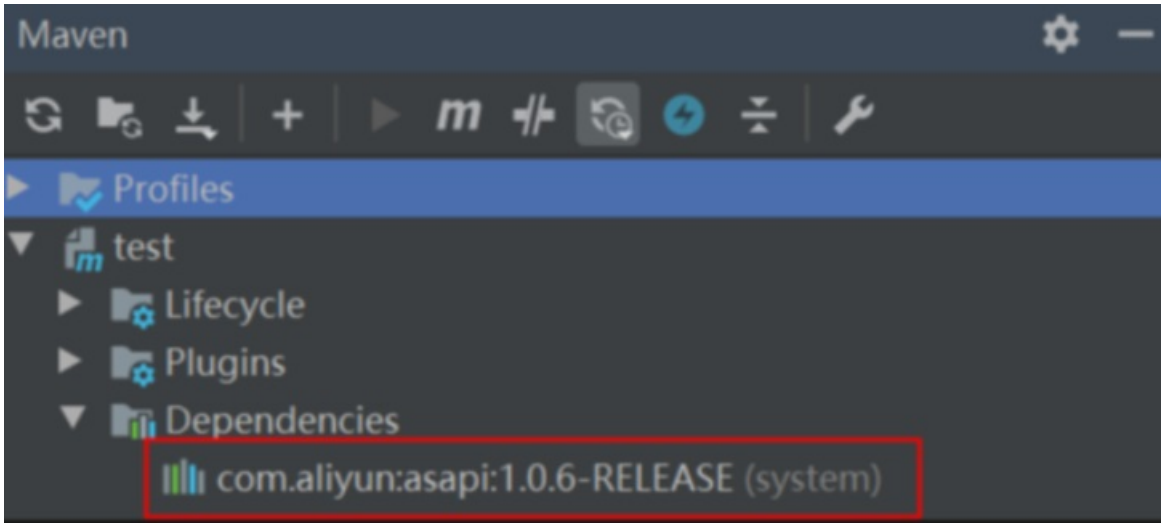
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

11.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

11.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

11.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

11.1.1.1.5. HTTP requests

11.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

11.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

11.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

11.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

11.1.2. API reference

11.1.2.1. API overview

Instance lifecycle management API operations

Operation	Description
CreateInstance	Creates an instance.

Operation	Description
DeleteInstance	Releases an instance.
ModifyInstanceSpec	Changes the specifications of a specified instance.

Instance management API operations

Operation	Description
DescribeInstanceAttribute	Queries detailed information about instances.
DescribeInstances	Queries basic information about instances.
DescribeRegions	Queries available regions.
DescribeSecurityIps	Queries the IP whitelist that allows connections to a specified instance from specified IP addresses or CIDR blocks.
FlushInstance	Clears an instance.
ModifyInstanceAttribute	Sets the attribute for a specified instance.
ModifyInstanceMaintainTime	Changes maintenance time for a specified instance.
ModifySecurityIps	Changes the whitelist for a specified instance.
ModifyInstanceNetExpireTime	Changes the period for retaining a domain name of a specified classic network.
SwitchNetwork	Changes the type of a network.

Backup and recovery API operations

Operation	Description
CreateBackup	Creates a backup.
ModifyBackupPolicy	Changes a backup policy.
DescribeBackupPolicy	Queries backup policies.
DescribeBackups	Queries available backups.
RestoreInstance	Restore a specified instance based on a specified backup set.

Monitoring management API operations

Operation	Description
DescribeMonitorItems	Queries available monitoring metrics.

Operation	Description
DescribeHistoryMonitorValues	Queries historical monitoring data.

Parameter management API operations

Operation	Description
DescribeInstanceConfig	Queries parameters of a specified instance.
ModifyInstanceConfig	Changes parameters of a specified instance.

11.1.2.2. Request structures

Endpoint

The endpoint of the KVStore for Redis API is `r-kvstore.example.com`.

For more information about how to obtain an endpoint, see Generate the endpoint of ASAPI.

> **Note** *example.com* is a domain name that is customized for a project. You can obtain the domain name from the administrator.

Protocols

You can send requests over HTTP or HTTPS. To enhance data security, we recommend that you send API requests by using HTTPS.

Methods

You can send requests by using the HTTP GET method. This method requires that you specify request parameters in the request URL.

Request parameters

You must specify the Action parameter for each request. For example, you can specify CreateInstance. You must also specify common request parameters and specific request parameters that are required by each operation.

Encoding

Requests and responses are both encoded in UTF-8.

11.1.2.3. Common parameters

Common request parameters must be included in all API requests.

Common request parameters

Common request parameters

Parameter	Type	Required	Description
Format	String	Yes	The type of the returned value. Valid values: JSON and XML. Default value: XML
Version	String	Yes	The version of the API. Specify the version in the YYYY-MM-DD format. The current version is 2015-01-01.
AccessKeyId	String	Yes	The AccessKey ID provided by Alibaba Cloud.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the `yyyy-MM-ddTHH:mm:ssZ` format. The time must be in UTC. For example, you can set the parameter to 2016-01-01T12:00:00Z. This specifies 20:00:00, January 1, 2016, UTC+08:00.
SignatureVersion	String	Yes	The version of the signature algorithm. The current version is 1.0.
SignatureNonce	String	Yes	The unique random number that is used to prevent replay attacks. You must use different random numbers for different requests.

```
https:// r-kvstore.example.com/
? Format=json
&Version=2015-01-01
&Signature=Pc5xxxxxxxxxxxxxxxxx
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2016-01-01T12:00:00Z
```

Common response parameters

Each time you call an API operation, the system returns a globally unique ID (RequestId). This is regardless of whether the request is successful.

```
<? xml version="1.0" encoding="utf-8"? >
<!-The root of the response-->
<Operation name+Response>
<!—The returned request tag-->
<RequestId>4C4fdsf38-3910-447D-87AD-AC078932216</RequestId>
<!—The returned result-->
</Operation name+Response>
```

11.1.2.4. Responses

After you call an API operation, KVStore for Redis returns data in the same format. In the response, an HTTP status code in the `2xx` format indicates that the call is successful. An HTTP status code in the `4xx` or `5xx` format indicates that the call failed. The system returns responses for successful calls in XML or JSON format. You can specify the response format in request parameters. The system uses the XML format by default.

Note The response examples in this topic have been formatted with line breaks or indents to provide a clear view. The responses in your actual running environments are not properly formatted as these examples.

Sample success response

The response in XML format includes a message that indicates whether the call is successful and the specific service data. An example is as follows:

```
<? xml version="1.0" encoding="utf-8"? >
<!—The root node of the response-->
<Operation name+Response>
<!—The request ID returned-->
<RequestId>4C4fdsf38-3910-447D-87AD-AC078932216</RequestId>
<!—The result data returned-->
</Operation name+Response>
```

JSON format

```
{
"RequestId": "4C4fdsf38-3910-447D-87AD-AC078932216",
/* The result data returned */
}
```

Sample error response

When an error occurs during an API call, no result data is returned. You can locate the cause of the error by referencing the attached list of error codes. If an error occurs when you call an operation over HTTP, an HTTP status code in the `4xx` or `5xx` format is returned. The returned message body includes the specific error code and error message. The message body also contains a globally unique request ID called RequestId and a target site ID called HostId. If you cannot locate the cause, request Apsara Stack customer service, and provide the HostId and RequestId for troubleshooting.

```
<? xml version="1.0" encoding="UTF-8"? >
<Error>
<RequestId>8906582E-6722-409A-A6C4-0E7863B733A5</RequestId>
<HostId> r-kvstore.example.com</HostId>
<Code>UnsupportedOperation</Code>
<Message>The specified action is not supported. </Message>
</Error>
```

JSON format

```
{
"RequestId": "7463B73D-35CC-4D19-A010-6B8D65D242EF",
"HostId": " r-kvstore.example.com",
"Code": "UnsupportedOperation",
"Message": "The specified action is not supported."
}
```

11.1.2.5. Request signatures

KVStore for Redis authenticates each access request. You need to include a signature when you submit an HTTP or HTTPS request. KVStore for Redis authenticates the request sender identity by using symmetric encryption based on an AccessKey pair that consists of an AccessKey ID and an AccessKey secret.

An AccessKey ID and an AccessKey secret are issued to you by Alibaba Cloud. You can apply for and manage them on the Alibaba Cloud website. The AccessKey ID is used to verify the identity of the user. The AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential.

For more information about how to obtain the AccessKey pair, see Obtain an AccessKey pair.

Sign a request

Perform the following steps to sign an API request:

1. Create a canonicalized query string by using request parameters.
    i. To construct a canonicalized query string, sort all request parameters by name in alphabetic order. These parameters include common request parameters and customized API request parameters. However, this does not include the Signature parameter.

    > **Note** When you use the GET method to submit requests, you specify these parameters in the request URI that follow the question mark (?) and are connected with the ampersand (&).

ii. Encode the name and value of each request parameter.

Perform URL encoding on the names and values by using the UTF-8 character set. The following section shows the URL encoding rules:

- Uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), hyphens (-), underscores (_), periods (.), and tildes (~) are not encoded.
- Encode other characters in the `%XY` format, where `XY` specifies the ASCII code of the characters in the hexadecimal format. For example, double quotation marks (") are encoded as `%22`.
- Extended UTF-8 characters are encoded in the `%XY%ZA` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (+).

> **Note** Libraries that support URL encoding, such as java.net.URLEncoder, follow the Multipurpose Internet Mail Extensions (MIME) encoding rules of `application/x-www-form-urlencoded`. If this encoding method is used, replace the plus signs (+) in the encoded strings with `%20`, the asterisks (*) with `%2A`, and `%7E` with a tilde (~) to conform to the encoding rules.

iii. Connect the encoded parameter name and value with an equal sign (=).

iv. Sort the key-value pairs connected by equal signs (=) in alphabetical order and separate them with ampersands (&).

2. Create a string-to-sign from the encoded canonicalized query string that is obtained in the preceding step based on the following rules:

```
StringToSign=
HTTPMethod + "&" +
percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

In this example,

- `HTTPMethod` specifies the HTTP method that is used to submit the request, such as GET.
- `percentEncode("/")` is the value (`%2F`) as the result of encoding the slash sign (/) based on the URL encoding rule described in Step 1.b.
- `percentEncode(CanonicalizedQueryString)` is the string that results from encoding the canonicalized query string described in Step 1 based on the URL encoding rules described in Step 1.b.

3. As defined in RFC 2104, use the preceding signature string to calculate the signature into an HMAC value.

> **Note** The key that is used for calculating the signature is your AccessKey secret followed by an ampersand (&) (ASCII:38). The SHA1 algorithm is used for the calculation.

4. Encode the HMAC value in Base64 to obtain the signature string.
5. Add the signature string to the request as the Signature parameter.

> **Note** When you submit the signature string to the KVStore for Redis instance as the final request parameter value, perform URL encoding on this parameter based on RFC 3986 rules. This is the same method that is used to process other parameters.

Example

DescribeDrdsInstances is used in this example. The following section shows the canonicalized query string:

```
http://r-kvstore.example.com/?Timestamp=2013-06-01T10:33:56Z&Format=XML&AccessKeyId=testid&
Action=DescribeInstances&SignatureMethod=HMAC-SHA1&RegionId=region1&SignatureNonce=NwDAxvLU
6tFE0DVb&Version=2015-01-01&SignatureVersion=1.0
```

The following section shows the calculated StringToSign:

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeInstances&Format%3DXML&RegionId%3Dregion1&Sig
natureMethod%3DHMAC-SHA1&SignatureNonce%3DNwDAxvLU6tFE0DVb&SignatureVersion%3D1.0&Timestamp
%3D2013-06-01T10%253A33%253A56Z&Version%3D2015-01-01
```

In this example, if the AccessKey ID is `testid` and the AccessKey secret is `testsecret`, the key used for HMAC calculation is `testsecret&`. Therefore, the calculated signature value is `BIxxxxxxxxxxxxxxxxxxxxxx=`.

The following section shows the signed request URL that includes the Signature parameter:

```
http://r-kvstore.example.com/?Timestamp=2013-06-01T10%3A33%3A56Z&Format=XML&AccessKeyId=tes
tid&Action=DescribeInstances&SignatureMethod=HMAC-SHA1&RegionId=region1&SignatureNonce=NwDA
xvLU6tFE0DVb&SignatureVersion=1.0&Version=2015-01-01&Signature=BIPOMlxxxxxxxxxxxxxxxxxxxu8LX
BeZtLQkJTw6iFvw1E%3D
```

11.1.2.6. RAM-based authorization

11.1.2.6.1. Grant resource permissions to a RAM user

The instances that you create by using your Alibaba Cloud account are the resources owned by the account. An account has the full operation permissions on the resources under this account by default.

Alibaba Cloud Resource Access Management (RAM) allows you to grant the access and management permissions on resources under a cloud account to RAM users.

> **Note** Ignore this topic if you do not use Resource Access Management (RAM).

11.1.2.6.2. Authorized resource types in RAM

KVStore for Redis only supports RAM authorization for Redis instances.

The following table lists the description of resources when you use RAM to authorize access permissions to these resources.

Resource	Resource description in authorization policy
Instance	acs:kvstore:$regionid:$accountid:instance/$instanceid acs:kvstore:$regionid:$accountid:instance/ acs:kvstore:::instance/

All $regionids must be the ID of a region or an asterisk (*). All $instanceids must be the ID of an instance or an asterisk (*). Similarly, $account-id is the numerical ID of your Apsara Stack tenant account, which can be replaced by an asterisk (*).

11.1.2.6.3. Operation permissions granted to a RAM user

You are authorized to call the following API operations to manage the specified resource as a Resource Access Management (RAM) user:

- CreateInstance
- DeleteInstance
- ModifyInstanceSpec
- RenewInstance
- RenewMultiInstance
- TransformToPrePaid
- ModifyInstanceAttribute
- FlushInstance
- DescribeInstances
- DescribeInstanceAttribute
- ModifyInstanceMaintainTime
- ModifySecurityIps
- SwitchNetwork
- ModifyInstanceNetExpireTime
- CreateBackup
- ModifyBackupPolicy
- DescribeBackupPolicy
- DescribeBackups
- RestoreInstance
- DescribeHistoryMonitorValues
- DescribeInstanceConfig
- ModifyInstanceConfig

11.1.2.6.4. API authentication rules

When you use API operations to access resources as a Resource Access Management (RAM) user, the system queries the RAM service and checks whether the RAM user is granted the required permissions.

Each API operation determines the resources for permission check according to the involved resources and the semantics of the API operation. The following table lists the authentication rules corresponding to different API operations.

Authentication rules

Operation	Authentication rule
CreateDBInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
DeleteInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyInstanceSpec	acs:kvstore:$regionid:$accountid:instance/$instanceid
RenewInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
RenewMultiInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
TransformToPrePaid	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyInstanceAttribute	acs:kvstore:$regionid:$accountid:instance/$instanceid
FlushInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
DescribeInstances	acs:kvstore:$regionid:$accountid:instance/$instanceid
DescribeInstanceAttribute	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyInstanceMaintainTime	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifySecurityIps	acs:kvstore:$regionid:$accountid:instance/$instanceid
SwitchNetwork	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyInstanceNetExpireTime	acs:kvstore:$regionid:$accountid:instance/$instanceid
CreateBackup	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyBackupPolicy	acs:kvstore:$regionid:$accountid:instance/$instanceid

Operation	Authentication rule
DescribeBackupPolicy	acs:kvstore:$regionid:$accountid:instance/$instanceid
DescribeBackups	acs:kvstore:$regionid:$accountid:instance/$instanceid
RestoreInstance	acs:kvstore:$regionid:$accountid:instance/$instanceid
DescribeHistoryMonitorValues	acs:kvstore:$regionid:$accountid:instance/$instanceid
DescribeInstanceConfig	acs:kvstore:$regionid:$accountid:instance/$instanceid
ModifyInstanceConfig	acs:kvstore:$regionid:$accountid:instance/$instanceid

11.1.2.7. Manage the lifecycle

11.1.2.7.1. CreateInstance

Description

You can call this operation to create an instance. For more information, see Instance specifications.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to CreateInstance.

Parameter	Type	Required	Description
InstanceName	String	No	The name of the instance. The name must be 2 to 128 characters in length and must start with a letter. The name cannot contain special characters or spaces. Special characters include @ / : = " < > { } [ ]
Password	String	No	The password of the instance. The password must be a string of 8 to 30 characters in length and must contain uppercase letters, lowercase letters, and digits. **Note** Special characters are not supported, such as ! < > ( ) [ ] { } , ` ~ . - _ @ # $ % ^ & *
InstanceClass	String	Yes	The type of the requested KVStore for Redis instance. For more information, see Instance specifications.
RegionId	String	Yes	The region ID of the instance. You can query available data regions by calling the DescribeRegions operation.
ZoneId	String	No	The zone ID of the instance. You can call DescribeRegions to view available zones.

Parameter	Type	Required	Description
ChargeType	String	No	The billing method of the instance. Valid values: PrePaid and PostPaid. Default value: PostPaid.
Period	Long	No	The billing period of the instance. If you set the ChargeType parameter to PrePaid, you must also specify the Period parameter. Unit: month. Valid values: 1-9, 12, 24, and 36.
Token	String	No	The client token that is used to ensure the idempotence of requests. The value of this parameter is generated by the client and must be unique among different requests. The value is case-sensitive and can be up to 64 ASCII characters in length. For more information, see How to ensure idempotence.
NetworkType	String	No	The type of the network. Default value: Classic. Valid values: • Classic • VPC
VpcId	String	No	The ID of the VPC to which the instance belongs.
VSwitchId	String	No	The ID of the VSwitch.
PrivateIp	String	No	The private IP address of the instance.

Parameter	Type	Required	Description
SrcDBInstanceId	String	No	If an instance created based on a backup set generated by another instance is valid, specifies the ID of the instance that generates the backup set.
BackupId	String	No	If an instance created based on a backup set generated by another instance is valid, specifies the ID of the generated backup set. You can call DescribeBackups to query the value of BackupId.
InstanceType	String	No	The category of the instance. Valid values: Redis and Memcache. Default value: Redis.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
InstanceId	String	The ID of the instance, which is globally unique.
InstanceName	String	The name of the instance.

Note Due to the compatibility with earlier versions, this topic does not describe some returned fields such as Config and Region for the operation. Alibaba Cloud will delete these fields as needed in the future.

Sample requests

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=CreateInstance
&RegionId=cn-hangzhou
&Password=Qa123456
&InstanceClass= redis.master.small.default
```

Sample responses

```
{
"InstanceId":"73xxxxxxxxxx",
"InstanceName":"73xxxxxxxxxx"
}
```

11.1.2.7.2. DeleteInstance

Description

You can call this operation to delete a specified instance. This instance that you want to release must be in the following status:

- The instance is in the running state.
- The instance is not locked.

> **Note** You cannot delete a subscription instance until the instance expires.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DeleteInstance.
InstanceId	String	Yes	The globally unique ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=DeleteInstance
&InstanceId=657xxxxxxxxxxx
```

Sample response

```
{
"RequestId" : "C2225574-1D93-4F8A-B1D5-39FCBAA40660"
}
```

11.1.2.7.3. ModifyInstanceSpec

Description

You can call this operation to change the specifications of a specified instance. For more information about instance specifications, see Instance types.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifyInstanceSpec.
InstanceId	String	Yes	The globally unique ID of the specified instance.
InstanceClass	String	Yes	The type of the specified instance. For more information, see Instance types.

Response parameters

Response parameters

Parameter	Type	Description
<Common request parameters>	-	For more information, see Common parameters.

Parameter	Type	Description
OrderId	String	The ID of the order that you have placed.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=ModifyInstanceSpec
&InstanceId=736538d0a6894665
&InstanceClass= redis.master.mid.default
```

Sample response

```
{
"OrderId" : "201294900260011"
"RequestId" : "283746AF-82B3-4BFF-88CC-BF34CDE2732"
}
```

11.1.2.8. Manage instances

11.1.2.8.1. DescribeInstanceAttribute

Description

You can call this operation to query details of a specified instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common requests.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeInstanceAttribute.
InstanceId	String	Yes	The globally unique ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
Instances	List	The array that contains the DBInstanceAttribute values.

DBInstanceAttribute parameters

Parameter	Type	Description
InstanceId	String	The globally unique ID of the instance that was queried.
InstanceName	String	The name of the instance that was queried.
Capacity	Long	The capacity that you have requested for the instance that was queried, in MB.
InstanceClass	String	The type of the instance that was queried.
Bandwidth	Long	The bandwidth limit of the instance that was queried, in Mbit/s.
Connections	Long	The maximum number of connections to the instance that was queried.
ConnectionDomain	String	The domain name of the instance that was queried. This domain name only supports connections over an internal network.
Port	Int	The port of the instance that was queried.
RegionId	String	The region where the instance that was queried was located. For more information, see DescribeRegions.
ZoneId	String	The ID of the zone under the RegionId of the instance that was queried. For more information, see DescribeRegions.

Parameter	Type	Description
InstanceStatus	String	The status of the instance that was queried. Possible values: • Normal: the instance that was queried was normal. • Creating: the instance that was queried was being created. • Changing: the instance that was queried was being changed. • Inactive: the instance that was queried was disabled.
ChargeType	String	The billing method of the instance that was queried. Possible values: PrePaid and PostPaid.
CreateTime	String	The time when the instance that was queried was created. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time is displayed in UTC time format.
EndTime	String	The time when the subscription instance that was queried was about to expire. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time is displayed in UTC time format.
NetworkType	String	The type of the network where the instance that was queried was located. Possible values: CLASSIC or VPC.
VpcId	String	The ID of the VPC where the instance that was queried was located.
VSwitchId	String	The ID of the VSwitch for the instance that was queried.
PrivateIpAddress	String	The private IP address of the instance that was queried.

Parameter	Type	Description
MaintainStartTime	String	The time when maintenance can be started.
MaintainEndTime	String	The time when maintenance can be ended.
SecurityIPList	String	The IP whitelist for the instance that was queried.
AvailabilityValue	String	The availability metrics of the current month for the instance that was queried.

Note Due to the compatibility with earlier versions, this topic does not describe some returned fields such as Config and Region for the operation. Alibaba Cloud will delete these fields as needed in the future. In this case, do not rely on the returned fields that this topic has not described when you call this operation.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=DescribeInstanceAttribute
&InstanceId=7xxxxxxxxxx
```

Sample response

```
{
{
    "Instances" : {
        " DBInstanceAttribute " : [{
                "Bandwidth" : 128,
                "Capacity" : 512,
                "ConnectionDomain" : "de5d88e34d004211.m.cnhzalicm10pub001.r-kvstore.exampl
e.com.com",
                "Connections" : 300,
                "ZoneId" : "cn-qingdao-b",
                "InstanceId" : "dexxxxxxxxxx",
                "InstanceName" : "xxxxxx",
                "InstanceStatus" : "Available",
                 "InstanceClass" : "redis.master.mid.default",
                "Port" : 11211,
                "QPS" : 4500,
                "RegionId" : "cn-qingdao",
                 "ChargType":"PostPaid",
                  "NetworkType":"ClASSSIC"
                "MaintainStartTime": "02:00Z",
                 "MaintainEndTime": "06:00Z",
                 "SecurityIPList":"192.168.0.1",
                  "AvailabilityValue":"100%"
        }]
  }
"RequestId" : "283746AF-82B3-4BFF-88CC-BF34CDE2732"
}
```


11.1.2.8.2. DescribeInstances

Description

You can call this operation to query one or more instances under a specified account.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	-	See Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeInstances.

Parameter	Type	Required	Description
InstanceIds	String	No	The globally unique ID of the target instance. This parameter is required when you specify an instance ID. To query multiple instances, separate the identifiers of these instances with commas (,). If the parameter value is left blank, the system queries all instances under the specified account by default.
InstanceStatus	String	No	The instance status of the specified instance: Valid values: • Normal: the specified instance is normal. • Creating: the specified instance is being created. • Changing: the specified instance is being changed. • Inactive: the specified instance is disabled.
ChargeType	String	No	The billing method of the specified instance. Valid values: • PrePaid: the subscription billing method. • PostPaid: the pay-as-you-go billing method.
RegionId	String	Yes	You can call the DescribeRegions operation to query the RegionId value.

Parameter	Type	Required	Description
InstanceType	String	No	The type of the engine for the specified instance. Valid values: • Memcache: specifies an instance of Memcache type. • Redis: specifies an instance of Redis type.
PageNumber	Integer	No	The number of the page to return. Pages start from page 1. Default value: 1.
PageSize	Integer	No	The number of entries to return on each page. Valid values: 1 to 50. Default value: 10.
NetworkType	String	No	The type of the network where the specified instance is located. Valid values: • CLASSIC: specifies an instance in a classic network. • VPC: specifies an instance in a VPC.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
Instances	List	The array that contains the instances that were queried.
TotalCount	Integer	The total number of instances that were queried.
PageNumber	Integer	The number of the page returned.
PageSize	Integer	The number of entries returned on each page.

Instance parameters

Parameter	Type	Description
InstanceId	String	The globally unique ID of the instance that was queried.
InstanceName	String	The name of the instance that was queried.
Capacity	Long	The capacity that you have requested for the instance that was queried, in MB.
InstanceClass	String	The type of the instance that was queried.
Bandwidth	Long	The bandwidth limit of the instance that was queried, in Mbit/s.
Connections	Long	The maximum number of connections to the instance that was queried.
ConnectionDomain	String	The domain name of the instance that was queried. This domain name only supports connections over an internal network.
Port	Int	The port of the instance that was queried.
UserName	String	The username of the instance that was queried.
RegionId	String	The region where the instance that was queried was located.
ZoneId	String	The ID of the zone under the RegionId of the instance that was queried.

Parameter	Type	Description
InstanceStatus	String	The status of the instance that was queried. Possible values: • Normal: the instance that was queried was normal. • Creating: the instance that was queried was being created. • Changing: the instance that was queried was being changed. • Inactive: the instance that was queried was disabled. • Transforming: the instance that was queried was being transformed. • BackupRecovering: the instance that was queried was being backed up and restored. • MinorVersionUpgrading: the minor version of the instance that was queried was being upgraded.
ChargeType	String	The billing method of the instance that was queried. Possible values: PrePaid and PostPaid.
CreateTime	String	The time when the instance that was queried was created. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time is displayed in UTC time format.
EndTime	String	The time when the subscription instance that was queried was about to expire. The time follows the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time is displayed in UTC time format.
NetworkType	String	The type of the network where the instance that was queried was located. Possible values: CLASSIC or VPC.

Parameter	Type	Description
VpcId	String	The ID of the VPC where the instance that was queried was located.
VSwitchId	String	The ID of the VSwitch for the instance that was queried.
PrivateIpAddr	String	The private IP address of the instance that was queried.

Note Due to the compatibility with earlier versions, this topic does not describe some returned fields such as Config for the operation. Alibaba Cloud will delete these fields as needed in the future. In this case, do not rely on the returned fields that this topic has not described when you call this operation.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=DescribeInstances
&PageNumber=1
&PageSize=10
&InstanceId=dexxxxxxxxxx1
```

Sample response

```
{
    "Instances" : {
        "Instance" : [{
                "Bandwidth" : 128,
                "Capacity" : 512,
                "ConnectionDomain" : "de5d88e34d004211.m.cnhzalicm10pub001.r-kvstore.example.com",
                "Connections" : 300,
                "ZoneId" : "cn-qingdao-b",
                "InstanceId" : "dexxxxxxxxxx1",
                "InstanceName" : "xxxxxx",
                "InstanceStatus" : "Available",
                 "InstanceClass" : "redis.master.mid.default",
                "Port" : 11211,
                "RegionId" : "cn-qingdao",
                "UserName" : "xxxxxxxxxx"
                "NetworkType":"CLASSSIC"
"ChargeType":" PostPaid"
            }
        ]
    },
    "PageNumber" : 1,
    "PageSize" : 10,
    "TotalCount" : 1,
    "RequestId" : "969D0A1D-C91A-4837-9F70-49785DF9BDCE"
}
```


11.1.2.8.3. DescribeRegions

Description

You can call this operation to query regions where you can create instances.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeRegions.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
RegionIds	List	The RegionIds parameter is a list. Every element in this list consists of the RegionId and ZoneIds. ZoneIds is a string, and multiple ZoneId values are separated with commas (,).

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=DescribeRegions
```

Sample response

```
{
    "RequestId":"535A88D3-5408-4B29-AFD4-07319D97EBC4",
    "RegionIds":
    {
            {
                "ZoneIds":"cn-qingdao-b",
                "RegionId":"cn-qingdao",
            },
            {
                "ZoneIds":"cn-shenzhen-a",
                "RegionId":"cn-shenzhen",
            },
            {
                "ZoneIds":"cn-hangzhou-d,cn-hangzhou-b",
                "RegionId":"cn-hangzhou"
            },
            {
                "ZoneIds":"cn-beijing-a",
                "RegionId":"cn-beijing"
            }
    }
}
```

11.1.2.8.4. DescribeSecurityIps

Description

You can call this operation to query the list of IP addresses or CIDR blocks that you can use to connect to an instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeSecurityIps.
InstanceId	String	Yes	The name of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
SecurityIpGroups	List	The list of whitelisted IP addresses or CIDR blocks for the instance that was queried.

SecurityIpGroups parameters

SecurityIpGroups parameters

Parameter	Type	Description
SecurityIpGroupName	String	The name of the IP whitelist that was queried.

Parameter	Type	Description
SecurityIpList	String	The list of whitelisted IP addresses or CIDR blocks that were queried. A maximum of 1,000 IP addresses or CIDR blocks are displayed. IP addresses or CIDR blocks are separated with commas (,), such as `0.0.0.0/0,10.23.12.24` (IPv4 addresses) or `10.23.12.24/24` (Classless Inter-Domain Routing or CIDR notation). In the CIDR notation, 10.23.12.24 represents the IPv4 address 10.23.12.24. Its subnet mask is 255.255.255.0. The slash (/) and the following number 24 represent 24 leading 1 bits in the subnet mask and its associated routing prefix. The length of the routing prefix ranges from 1 to 32.

Sample request

```
https://r-kvstore.example.com/
? <Common request parameters>
&Action= DescribeSecurityIps
&InstanceId=6xxxxxxxxxxxxx
```

Sample response

```
{
" SecurityIpGroups " : {
" SecurityIpGroup" : [{
" SecurityIpGroupName" : "ipsecuritytest" ,
" SecurityIpList " : "10.xx.xx. 24"
}
]
},
"RequestId" : "969D0A1D-C91A-4837-9F70-49785DF9BDCE"
}
```

11.1.2.8.5. FlushInstance

Description

You can call this operation to clear data stored on an instance. The cleared data cannot be restored.

This is an asynchronous operation. After you call this operation, the system returns the result immediately. The system clears data in the background.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	-	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to FlushInstance.
InstanceId	String	Yes	The globally unique ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= FlushInstance
&InstanceId=65xxxxxxxx
```

Sample response

```
{
"RequestId" : "96893674-E50C-495D-AB0E-2F12C1E0FD45"
}
```

11.1.2.8.6. ModifyInstanceAttribute

Description

You can call this operation to modify attributes of an instance, such as the name or the password of the instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	-	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifyInstanceAttribute.
InstanceId	String	Yes	The globally unique ID of the specified instance.
InstanceName	String	No	The instance name that you want to change to. The name must be a string of 2 to 128 characters in length and must start with an uppercase or lowercase letter or Chinese character. Special characters, such as at signs (@), slashes (/), colons (:), equal signs (=), quotation marks ("), angle brackets (<>), braces ({}), brackets ([]), and spaces, are not supported.

Parameter	Type	Required	Description
NewPassword	String	No	The password of the specified instance. The password must be a string of 8 to 30 characters in length and must contain uppercase letters, lowercase letters, and numbers. **Note** Special characters, such as exclamation points (!), angle brackets (<>), parentheses (()), brackets ([]), braces ({}), commas (,), backticks (`), tildes (~), periods (.), hyphens (-), underscores (_), at signs (@), number signs (#), dollar signs ($), percent signs (%), carets (^), ampersands (&), and asterisks (*), are not supported.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= ModifyInstanceAttribute
&InstanceId=65xxxxxxxxx
&NewPassword=Qa12345678
&InstanceName=TestInstance
```

Sample response

```
{
"RequestId" : "E3B35BEA-9EB0-402C-88CF-C46CCCC1EE59"
}
```

11.1.2.8.7. ModifyInstanceMaintainTime

Description

You can call this operation to modify maintenance time for an instance. Alibaba Cloud may perform routine maintenance for the instance during the specified maintenance time.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifyInstanceMaintainTime.
InstanceId	String	Yes	The globally unique ID of the specified instance.
MaintainStartTime	String	Yes	The start time of the maintenance to be performed.
MaintainEndTime	String	Yes	The end time of the maintenance to be performed.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=ModifyInstanceMaintainTime
&InstanceId=65xxxxxxxx
& MaintainStartTime=02:00Z
& MaintainEndTime=06:00Z
```

Sample response

```
{
"RequestId" : "A099747A-0826-499D-9422-381C07337F73"
}
```

11.1.2.8.8. ModifyInstanceNetExpireTime

Description

You can call this operation to prolong the maximum period where the IP address in a classic network is retained if you switch an instance from the classic network to a Virtual Private Cloud (VPC) and retain the IP address in the classic network.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifyInstanceNetExpireTime.
InstanceId	String	Yes	The globally unique ID of the specified instance.
ConnectionString	String	Yes	The domain name of the specified classic network.
ClassicExpiredDays	String	Yes	The maximum number of days where the IP address in a specified classic network is retained. Valid values: 14, 30, 60, and 120.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= ModifyInstanceNetExpireTime
&ConectionString= fdafas32323ed.redis.rds.aliyuncs.com
&InstanceId=fdxxxxxxxxxx
& ClassicExpiredDays=120
```

Sample response

```
{
"RequestId" : "AAAF99B1-69ED-4E80-8CD5-272C09E46ACF"
}
```

11.1.2.8.9. ModifySecurityIps

Description

You can call this operation to set the IP whitelist for an instance, so that only authorized ECS IP addresses or CIDR blocks can be used to connect to the instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifySecurityIps.
InstanceId	String	Yes	The globally unique ID of the specified instance.

Parameter	Type	Required	Description
SecurityIps	String	Yes	The list of whitelisted IP addresses or CIDR blocks that you want to modify.
SecurityIpGroupName	String	Yes	The name of the specified whitelist group.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= ModifySecurityIps
&InstanceId=65xxxxxxxxxx
&SecurityIps=1.x.x. 1,2.x.x. 2
&SecurityIpGroupName=testgroup
```

Sample response

```
{
"RequestId" : "AAAF99B1-69ED-4E80-8CD5-272C09E46ACF"
}
```

11.1.2.8.10. SwitchNetwork

Description

You can call this operation to switch the network type of an instance. You can switch an instance from a classic network to a Virtual Private Cloud (VPC).

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to SwitchNetwork.
InstanceId	String	Yes	The globally unique ID of the specified instance.
TargetNetworkType	String	Yes	The type of the network that you want to switch to. • VPC • Classic You can only switch from a classic network to a VPC. In this case, set this parameter to VPC.
VpcId	String	No	The ID of the VPC that you want to switch to.
VSwitchId	String	No	The ID of the VSwitch ID for the VPC that you want to switch to. This parameter is required if you have set VpcId.
RetainClassic	String	No	Specifies whether to retain the IP address in the classic network. Valid values: • True: the classic network IP address is retained. • False: the classic network IP address is not retained. Default value: False.

Parameter	Type	Required	Description
ClassicExpiredDays	String	No	The maximum number of days where the IP address in the classic network are retained. Unit: days. Valid values: 14, 30, 60, and 120. This parameter is required if you have set RetainClassic to True.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= SwitchNetwork
&InstanceId=fdaxxxxxxxxx
& TargetNetworkType=VPC
&VpcId=fadsfa
&VSwitchId=131ed
&RetainClassic=True
&ClassicExpiredDays=30
```

Sample response

```
{
"RequestId" : "AAAF99B1-69ED-4E80-8CD5-272C09E46ACF"
}
```

11.1.2.9. Backup and recovery

11.1.2.9.1. CreateBackup

Description

You can call this operation to create a backup. This is an asynchronous operation. After you call this operation, the system returns the result immediately. The system creates the backup in the background.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to CreateBackup.
InstanceId	String	Yes	The ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= CreateBackup
&InstanceId= de5d8xxxxxxxxxx
```

Sample response

```
{
"RequestId" : "5C97648D-C85F-4D58-A71F-7B6750856BF7"
}
```

11.1.2.9.2. ModifyBackupPolicy

Description

You can call this operation to modify a backup policy.

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set the value to ModifyBackupPolicy.
InstanceId	String	Yes	The ID of the instance to which the backup file belongs.
PreferredBackupTime	String	Yes	The period of time to execute backup. Specify the time in the `HH:mmZ-HH:mmZ` format.
PreferredBackupPeriod	String	Yes	The period of data backup. Valid values: • Monday • Tuesday • Wednesday • Thursday • Friday • Saturday • Sunday

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample requests

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= ModifyBackupPolicy
&InstanceId= de5xxxxxxxxx
&PreferredBackupTime=00:00Z-04:00Z
&PreferredBackupPeriod= Saturday
```

Sample responses

```
{
"RequestId" : "5C97648D-C85F-4D58-A71F-7B6750856BF7"
}
```

11.1.2.9.3. DescribeBackupPolicy

Description

You can call this operation to query a backup policy that you have specified. You can query the backup details of an instance, such as the backup cycle and backup time.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeBackupPolicy.
InstanceId	String	Yes	The ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
BackupRetentionPeriod	String	The maximum number of days where backups of the specified instance were retained.
PreferredBackupTime	String	The time of the backup for the specified instance in the HH:mmZ-HH:mm Z format.

Parameter	Type	Description
PreferredBackupPeriod	String	The backup cycle for the specified instance. Possible values: • Monday • Tuesday • Wednesday • Thursday • Friday • Saturday • Sunday
PreferredNextBackupTime	String	The time of the next backup for the specified instance.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= DescribeBackupPolicy
&InstanceId= de5d8xxxxxxxxxxxxx
```

Sample response

```
{
"BackupRetentionPeriod":"7"
"PreferredBackupTime":"06:00Z-07:00Z"
"PreferredNextBackupTime":"2017-10-19T06:16Z"
"PreferredBackupPeriod":"Monday,Tuesday,Wednesday,Thursday,Friday,Saturday,Sunday"
"RequestId" : "5C97648D-C85F-4D58-A71F-7B6750856BF7"
}
```

11.1.2.9.4. DescribeBackups

Description

You can call this operation to query the details of a backup file, such as the backup start time, file size, backup mode, and download address.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DescribeBackups.
InstanceId	String	Yes	The ID of the instance to which the backup file belongs.
BackupId	String	No	The ID of the backup set.
PageSize	String	Yes	The number of entries to return on each page. Valid values: 30, 50, and 100.
PageNumber	String	Yes	The number of the page to return. Valid values: any non-zero positive integer.
StartTime	String	Yes	The beginning of the time range to query.
End time.	String	Yes	The end of the time range to query.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
Backups	List	An array consisting of Backup data.
PageNumber	Integer	The number of the returned page.
TotalCount	Integer	The total number of backups.
PageSize	Integer	The number of entries returned on each page.

Backup parameter structure

Backup parameter structure

Parameter	Type	Description
BackupId	String	The ID of the backup set.
BackupDBNames	String	The name of the database that is backed up.
BackupStatus	String	The status of the backup set. • Success • Failed
BackupStartTime	String	The beginning of the time range where the data was backed up.
BackupEndTime	String	The end of the time range where the data was backed up.
BackupType	String	The type of the backup. Valid values: • FullBackup • IncrementalBackup
BackupMode	String	The mode of the backup. Valid values: • Automated • Manual
BackupMethod	String	The method of the backup. Valid values: • Logical • Physical
BackupDownloadURL	String	The download URL of the backup file.
BackupSize	String	The size of the backup set.

Sample requests

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= DescribeBackups
&InstanceId= de5xxxxxxxxxxxx
&PageNumber=1
&PageSize=10
&InstanceId=de5xxxxxxxxxxxx
```

Sample responses

```
{
{
    " Backups " : {
        "Backup " : [{
           "BackupId":"111111111",
           "BackupDBNames":"all",
          "BackupStatus":"Success",
         "BackupType":"FullBackup",
"BackupStartTime":"2017-10-18T10:34:52Z",
"BackupEndTime":"2017-10-18T10:36:06Z",
"BackupMode":"Manual",
"BackupMethod":"Physical",
"BackupDownloadURL":"https://rdsxxx-st-v2.oss-cn-shenzhen.example.com/custins11111111/xxxxx
xxxx_data_20171018183408.rdb",
"BackupSize":"1024"
}
        ]
    },
    "PageNumber" : 1,
    "PageSize" : 10,
    "TotalCount" : 1,
"RequestId" : "5C97648D-C85F-4D58-A71F-7111111111117"
}
```


11.1.2.9.5. RestoreInstance

Description

You can call this operation to restore data to a primary instance based on a backup set.

Note Calling this operation will cause overwriting data on the specified instance with backup data. Proceed with caution.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to RestoreInstance.
InstanceId	String	Yes	The ID of the specified instance.

Parameter	Type	Required	Description
BackupId	String	Yes	Backup set ID

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= RestoreInstance
&InstanceId= de5dxxxxxxxxxxx
&BackupId=fdaxxxxxx
```

Sample response

```
{
"RequestId" : "AFA391BF-808F-4DA6-80A2-A382108A0945"
}
```

11.1.2.10. Manage monitoring

11.1.2.10.1. DescribeMonitorItems

Description

You can call this operation to query available monitoring metrics. The result is returned in the <parameter:unit> format.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeMonitorItems.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
MonitorItems	List	The list of monitoring metrics that were queried.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action=DescribeMonitorItems
```

Sample response

```
{
    "MonitorItems" : {
        "MonitorItem" : [{
                "MonitorKey" : "GetQ",
                "Unit" : "Counts/s"
            }, {
                "MonitorKey" : "Flush",
                "Unit" : "Counts/s"
            }, {
                "MonitorKey" : "UsedMemCache",
                "Unit" : "Bytes"
            }, {
                "MonitorKey" : "ReplaceQ",
                "Unit" : "Counts/s"
            }
        ]
    },
    "RequestId" : "B906A893-58A3-4644-AC2D-A2C9B08706C1"
}
```

11.1.2.10.2. DescribeHistoryMonitorValues

Description

You can call this operation to query historical monitoring data of an instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeHistoryMonitorValues.
InstanceId	String	Yes	The ID of the specified instance.
StartTime	String	Yes	The beginning of the time range where the historical monitoring data is queried. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC time format.
EndTime	String	Yes	The end of the time range where the historical monitoring data is queried. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC time format. The value of EndTime must be greater than or equal to that of StartTime.
IntervalForHistory	String	Yes	The interval for collecting monitoring data. Monitoring samples were collected every N minutes. Valid values: 01m, 05m, 15m, and 60m.
MonitorKeys	String	No	The key of the specified metric. You can call the DescribeMonitorItems operation to query the value of this parameter.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
MonitorHistory	String	The monitoring data returned in the JSON format. For more information, see DescribeMonitorItems. **Note** To improve the data transmission efficiency, only metrics whose values are not 0 have been returned. All metrics that are not displayed have been set to the default value 0.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= DescribeHistoryMonitorValues
&InstanceId= de5xxxxxxxxxxx
&EndTime=2014-11-27T12%3A02%3A00Z
&StartTime=2014-11-27T12%3A00%3A00Z
&IntervalForHistory=01m
```

Sample response

```
{
"MonitorHistory" :
"{"2014-11-27T12:00:00Z":{"IsConnectControl":false,"IsFlowControl":false,"ItemCount":1,"Quo
taConnection":500,"QuotaFlow":15360,"QuotaMemCache":1073741824,"QuotaQps":9000,"UsedMemCach
e":14},
"2014-11-27T12:01:00Z":{"IsConnectControl":false,"IsFlowControl":false,"ItemCount":1,"Quota
Connection":500,"QuotaFlow":15360,"QuotaMemCache":1073741824,"QuotaQps":9000,"UsedMemCache"
:14},
"2014-11-27T12:02:00Z":{"IsConnectControl":false,"IsFlowControl":false,"ItemCount":1,"Quota
Connection":500,"QuotaFlow":15360,"QuotaMemCache":1073741824,"QuotaQps":9000,"UsedMemCache"
:14}
}",
"RequestId" : "5C97648D-C85F-4D58-A71F-7B6750856BF7"
}
```

11.1.2.11. Manage parameters

11.1.2.11.1. DescribeInstanceConfig

Description

You can call this operation to query parameters of an instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to DescribeInstanceConfig.
InstanceId	String	Yes	The ID of the specified instance.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.
Config	String	The parameters of the specified instance that was queried. For more information, see Instance configurations.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= DescribeInstanceConfig
&InstanceId= de5dxxxxxxxxxxx
```

Sample response

```
{
"Config":"{"EvictionPolicy":"volatile-lru","hash-max-ziplist-entries":512,
"hash-max-ziplist-value":64,"list-max-ziplist-entries":512,
"list-max-ziplist-value":64,"set-max-intset-entries":512,
"zset-max-ziplist-entries":128,"zset-max-ziplist-value":64},
"RequestId":"59A58517-F8FF-44E5-B90F-F386DB3E4AB8"
}
```


11.1.2.11.2. ModifyInstanceConfig

Description

You can call this operation to modify a parameter of an instance.

Request parameters

Request parameters

Parameter	Type	Required	Description
<Common request parameters>	-	Yes	For more information, see Common parameters.
Action	String	Yes	The operation that you want to perform. Set this parameter to ModifyInstanceConfig.
InstanceId	String	Yes	The ID of the specified instance.
Config	String	Yes	The parameter of the specified instance that you want to modify. The value of this parameter must be in the JSON string format. For more information, see Instance configurations.

Response parameters

Response parameters

Parameter	Type	Description
<Common response parameters>	-	For more information, see Common parameters.

Sample request

```
https://r-kvstore.example.com
? <Common request parameters>
&Action= ModifyInstanceConfig
&InstanceId= de5xxxxxxxxxxx
&Config={"hash-max-ziplist-entries":"512"}
```

Sample response

```
{
"RequestId":"59A58517-F8FF-44E5-B90F-F386DB3E4AB8"
}
```

11.1.2.12. Appendixes

11.1.2.12.1. Instance specifications

KVStore for Redis provides instances of Community Edition and performance-enhanced instances of Enhanced Edition. These instance types support the standard architecture and the cluster architecture. This topic describes the specifications of different instance types, such as the memory capacity, maximum number of connections, and maximum bandwidth value.

Calculation rules for bandwidth values

- If network resources are sufficient, bandwidth is unlimited. However, if network resources are insufficient, the bandwidth is limited.
- The upper limit of the total bandwidth for a read/write splitting instance is 2,048 MB/s. After the upper limit is reached, the bandwidth cannot be increased even if you add more shards or nodes.
- The bandwidth value applies to the upstream and downstream bandwidths. For example, if the bandwidth of an instance is 10 MB/s, the upstream and downstream bandwidths of the instance are both 10 MB/s.
- The bandwidth in the preceding table is the internal bandwidth of the ApsaraDB for Redis instance. The Internet bandwidth is determined by the internal bandwidth and is limited by the bandwidth of the connection between the instance and a client. We recommend that you use an internal network to maximize the performance of the instance.

Performance-enhanced instances of KVStore for Redis Enhanced Edition (Tair)

Standard master-replica instances

Specification	Specification code	Number of I/O threads	Number of connections per second	Maximum number of concurrent connections	Total maximum bandwidth value (MB/s)
1 GB master-replica performance-enhanced instance	redis.amber.master.small.multithread	6	10000	30000	96
2 GB master-replica performance-enhanced instance	redis.amber.master.mid.multithread	6	10000	30000	96
4 GB master-replica performance-enhanced instance	redis.amber.master.stand.multithread	6	10000	30000	96
8 GB master-replica performance-enhanced instance	redis.amber.master.large.multithread	6	10000	30000	96
16 GB master-replica performance-enhanced instance	redis.amber.master.2xlarge.multithread	6	10000	30000	96
32 GB master-replica performance-enhanced instance	redis.amber.master.4xlarge.multithread	6	10000	30000	96
64 GB master-replica performance-enhanced instance	redis.amber.master.8xlarge.multithread	6	10000	30000	96

Cluster instances

Specification	Specification code	Number of I/O threads	Number of shards	Number of proxy servers	Number of connections per second	Maximum number of concurrent connections	Maximum bandwidth value per shard	Total maximum bandwidth value (MB/s)
2 GB cluster performance-enhanced instance (2 shards)	redis.amber.logic.sharding.1g.2db.0rodb.6proxy.multithread	6	2	4	50000	60000	96	192
4 GB cluster performance-enhanced instance (2 shards)	redis.amber.logic.sharding.2g.2db.0rodb.6proxy.multithread	6	2	4	50000	50000	96	192
8 GB cluster performance-enhanced instance (4 shards)	redis.amber.logic.sharding.2g.4db.0rodb.12proxy.multithread	6	4	4	50000	120000	96	384
16 GB cluster performance-enhanced instance (8 shards)	redis.amber.logic.sharding.2g.8db.0rodb.24proxy.multithread	6	8	8	50000	240000	96	768
32 GB cluster performance-enhanced instance (8 shards)	redis.amber.logic.sharding.4g.8db.0rodb.24proxy.multithread	6	8	8	50000	240000	96	768
64 GB cluster performance-enhanced instance (8 shards)	redis.amber.logic.sharding.8g.8db.0rodb.24proxy.multithread	6	8	8	50000	240000	96	768
32 GB cluster performance-enhanced instance (16 shards)	redis.amber.logic.sharding.2g.16db.0rodb.48proxy.multithread	6	16	16	50000	480000	96	1536
64 GB cluster performance-enhanced (16 shards)	redis.amber.logic.sharding.4g.16db.0rodb.48proxy.multithread	6	16	16	50000	480000	96	1536

Specification	Specification code	Number of I/O threads	Number of shards	Number of proxy servers	Number of connections per second	Maximum number of concurrent connections	Maximum bandwidth value per shard	Total maximum bandwidth value (MB/s)
128 GB cluster performance-enhanced instance (16 shards)	redis.amber.logic.sharding.8g.16db.0rodb.48proxy.multithread	6	16	16	50000	480000	96	1536
256 GB cluster performance-enhanced instance (16 shards)	redis.amber.logic.sharding.16g.16db.0rodb.48proxy.multithread	6	16	16	50000	480000	96	1536
512 GB cluster performance-enhanced instance (32 shards)	redis.amber.logic.sharding.16g.32db.0rodb.96proxy.multithread	6	32	32	50000	500000	96	2048
1,024 GB cluster performance-enhanced instance (64 shards)	redis.amber.logic.sharding.16g.64db.0rodb.192proxy.multithread	6	64	64	50000	500000	96	2048
2,048 GB cluster performance-enhanced instance (128 shards)	redis.amber.logic.sharding.16g.128db.0rodb.384proxy.multithread	6	128	128	50000	500000	96	2048
4,096 GB cluster performance-enhanced instance (256 shards)	redis.amber.logic.sharding.16g.256db.0rodb.768proxy.multithread	6	256	256	50000	500000	96	2048
8,192 GB cluster performance-enhanced instance (256 shards)	redis.amber.logic.sharding.32g.256db.0rodb.768proxy.multithread	6	256	256	50000	500000	96	2048

Community Edition instances

Standard master-replica instances

Specification	Service code	Maximum number of connections	Maximum bandwidth value (MB/s)	CPU
1GB master-replica instance	redis.master.small.default	20000	48	1 core
2 GB master-replica instance	redis.master.mid.default	20000	48	1 core
4 GB master-replica instance	redis.master.stand.default	20000	48	1 core
8 GB master-replica instance	redis.master.large.default	20000	48	1 core
16 GB master-replica instance	redis.master.2xlarge.default	20000	48	1 core
32 GB master-replica instance	redis.master.4xlarge.default	20000	48	1 core
64 GB master-replica instance	redis.master.8xlarge.default	20000	96	1 core

Cluster instances

Specification	Service code	Number of shards	Maximum number of connections	Maximum bandwidth value (MB/s)	CPU
16 GB cluster instance	redis.logic.sharding.2g.8db.0rodb.8proxy.default	8	80000	768	8 cores
32 GB cluster instance	redis.logic.sharding.4g.8db.0rodb.8proxy.default	8	80000	768	8 cores
64 GB cluster instance	redis.logic.sharding.8g.8db.0rodb.8proxy.default	8	80000	768	8 cores
128 GB cluster instance	redis.logic.sharding.8g.16db.0rodb.16proxy.default	16	160000	1536	16 cores
256 GB cluster instance	redis.logic.sharding.16g.16db.0rodb.16proxy.default	16	160000	1536	16 cores
512 GB cluster instance	redis.logic.sharding.16g.32db.0rodb.32proxy.default	32	320000	2048	32 cores
1 TB cluster instance	redis.logic.sharding.16g.64db.0rodb.64proxy.default	64	500000	2048	64 cores

Specification	Service code	Number of shards	Maximum number of connections	Maximum bandwidth value (MB/s)	CPU
2 TB cluster instance	redis.logic.sharding.16g.128db.0rodb.128proxy.default	128	500000	2048	128 cores
4 TB cluster instance	redis.logic.sharding.16g.256db.0rodb.256proxy.default	256	500000	2048	256 cores

11.1.2.12.2. Error codes

Description	Error code	Error message	HTTP status code
The error message returned because RAM users are not authorized to call the API operation.	Forbidden.RAM	User not authorized to operate on the specified resource, or this API doesn't support RAM.	403
The error message returned because the operation is unavailable for RAM users.	Forbedden.NotSupportRAM	This action does not support accessed by RAM mode.	403
The error message returned because an exception or error occurs on the server.	ServiceUnavailable	The request has failed due to a temporary failure of the server.	503
The error message returned because the instance status that you specified does not exist.	InvalidStatus.NotFound	The Status provided does not exist in our records.	404
The error message returned because the specified value of the parameter is invalid.	InvalidParameter	The specified parameter InstanceName is not valid.	400
The error message returned because you are not authorized to call the administrator-specific API operations.	Forbbiden.NotAdminUser	User not authorized to operate on the specified API as you are not the	403
The error message returned because the parameter is missing.	MissingParameter	Specified parameter is missing.	400

Description	Error code	Error message	HTTP status code
The error message returned because neither InstanceName nor NewPassword is specified.	MissingParameter	InstanceName/NewPassword at least one is mandatory for this action.	400
The error message returned because OwnerId is not specified for this operation.	MissingParameter	The input parameter OwnerId, OwnerAccount that is mandatory for processing this request	403
The error message returned because the specified Token parameter is invalid.	InvalidToken.Malformed	The Specified parameter "Token" is not valid.	400
The error message returned because the specified InstanceName parameter is invalid.	InvalidInstanceName.Malformed	The Specified parameter "InstanceName" is not valid.	400
The error message returned because the specified Password parameter is invalid.	InvalidPassword.Malformed	The Specified parameter "Password" is not valid."	400
The error message returned because the specified Instances parameter is invalid.	InvalidInstances.Malformed	The Specified parameter "Instances" is not valid.	400
The error message returned because the specified StartTime parameter is invalid.	InvalidStartTime.Malformed	The Specified parameter "StartTime" is not valid.	400
The error message returned because the specified EndTime parameter is invalid.	InvalidEndTime.Malformed	The Specified parameter "EndTime" is not valid.	400
The error message returned because the specified InstanceIds parameter is invalid.	InvalidInstanceIds.Malformed	The Specified parameter "InstanceIds" is not valid.	400
The error message returned because your balance is insufficient to perform the current operation.	InsufficientBalance	Your account does not have enough balance.	400

Description	Error code	Error message	HTTP status code
The error message returned because your account fails to pass the real-name authentication.	RealNameAuthenticationError	Your account has not passed the real-name authentication yet.	403
The error message returned because your instance quota has been exhausted.	QuotaExcee	Living afterpay instances quota exceeded.	400
The error message returned because the capacity configuration is invalid.	InvalidCapacity.NotFound	The Capacity provided does not exist in our records.	400
The error message returned because the ClientToken parameter used for this request has already been used for a different request.	IdempotentParameterMismatch	Request uses a client token in a previous request but is not identical to that request.	400
The error message returned because the inventory of instances in the specified zone is insufficient.	QuotaNotEnough	Quota not enough in this zone.	400
The error message returned because you are not authorized to call the order-class API operations.	Forbbiden.SubUser	The specified action is not available for you.	403
The error message returned because the Apsara Stack risk control system denies this access request.	Forbidden.RiskControl	This operation is forbidden by Aliyun Risk Control system.	403
The error message returned because the specified region does not exist.	InvalidRegion.NotFound	The RegionId or ZoneId provided does not exist in our records.	404
The error message returned because the specified ZoneId parameter is invalid.	InvalidZoneId.NotFound	The ZoneId provided is invalid.	400

Description	Error code	Error message	HTTP status code
The error message returned because the ID of the instance does not exist.	InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	404
The error message returned because the password is incorrect.	IncorrectPassword	The Password provided is not correct.	400
The error message returned because the service is unavailable.	ServiceNotSupported	The specified service is not supported.	400
The error message returned because a renewal and configuration change order has not taken effect.	HasRenewChangeOrder	This instance has a renewChange order.	400
The error message returned because an internal error occured.	InternalError	The request processing has failed due to some unknown error.	500
The error message returned because the specified backup time is invalid.	InvalidPreferredBackupTime	Specified preferred backup time is not valid.	400
The error message returned because the specified backup type is invalid.	InvalidBackupType.Format	Specified backup type is not valid.	400
The error message returned because the specified backup method is invalid.	InvalidBackupMethod.Format	Specified backup method is not valid.	400
The error message returned because the backup task already exists.	BackupJobExists	A backup job already exists in the specified DB instance.	400
The error message returned because the maximum number of daily backup operations has been reached.	BackupTimesExceeded	Exceeding the daily backup times of this DB instance.	400

Description	Error code	Error message	HTTP status code
The error message returned because no parameters are specified.	ParameterLeastAssociate	Must input at least one optional parameter.	400
The error message returned because the specified backup period is invalid.	InvalidBackupRetentionPeriod.Malformed	Specified backup retention period is not valid.	400
The error message returned because the specified next backup time is invalid.	InvalidPreferredBackupTime.Format	Specified preferred backup time is not valid.	400
The error message returned because the specified backup period is invalid.	InvalidPreferredBackupPeriod.Malformed	Specified backup period is not valid.	400
The error message returned because the operation is not supported by the current instance type.	IncorrectDBInstanceType	Current DB instance type does not support this operation	400
The error message returned because the specified key is invalid.	InvalidKey.Malformed	Specified key is not valid.	400
The error message returned because the nonce signature is used and cannot be used again.	SignatureNonceUsed	Specified signature nonce was used already.	400
The error message returned because no virtual IP address can be assigned.	AllocateVpcIp.NotEnough	Ip resource is not enough	400
The error message returned because instances of the specified type cannot be created in the zone.	Zone.NotSupport	Specified zone does not support creating with instance class.	400
The error message returned because the code for the instance type is invalid.	MissingClassCode	Capacity or InstanceClass is mandatory for this action.	400

Description	Error code	Error message	HTTP status code
The error message returned because the specified instance type is not supported.	InvalidDBInstanceClass.NotFound	Specified DB instance class is not found.	404
The error message returned because the instance is locked.	IncorrectDBInstanceLockMode	Current DB instance lock mode does not support this operation.	400
The error message returned because the ID of the backup set does not exist.	InvalidBackupSetID.NotFound	Specified backup set ID does not exist.	400
The error message returned because the operation is not supported while the instance is in the current state.	IncorrectDBInstanceState	Current DB instance state does not support this operation.	400
The error message returned when the available resource capacity in the specified instance is insufficient.	InsufficientResourceCapacity	There is insufficient capacity available for the requested instance.	400
The error message returned because the specified end time is invalid.	InvalidEndTime.Format	Specified end time is not valid.	400
The error message returned because the specified duration for reserving a classic IP address is invalid.	InvalidClassicExpiredDays.Format	The specified classicExpiredDays format is not valid.	400
The error message returned because the operation is not supported while the backup set is in the current state.	IncorrectBackupSetState	Current backup set state does not support operations.	400
The error message returned when the specified whitelist is not correct in format.	InvalidSecurityIPList.Format	Specified security IP list format is not valid.	400

11.1.2.12.3. Instance configurations

KVStore for Redis instance configurations

Parameter	Description	Value
maxmemory-policy	The eviction policy that a KVStore for Redis instance uses to evict data when the memory exceeds the threshold. KVStore for Redis supports six data eviction policies.	• VolatileLRU: only evicts original data that has Time To Live (TTL) configured based on the Least Recently Used (LRU) algorithm. • VolatileTTL: only evicts data that has TTL configured based on the TTL values in ascending order. • AllKeysLRU: evicts original data based on the LRU algorithm. • VolatileRandom: only evicts original data that has TTL configured randomly. • AllKeysRandom: evicts original data randomly. • NoEviction: evicts no data, but returns an error message when you write new data to the instance.
hash-max-ziplist-entries	A hash object uses ziplist encoding only if the hash object meets both of the following conditions: • The number of key-value pairs stored in the hash object is smaller than or equal to the value of list-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the hash object are smaller than or equal to the value of list-max-ziplist-value.	Default value: 512.

Parameter	Description	Value
hash-max-ziplist-value	A hash object uses ziplist encoding only if the hash object meets both of the following conditions: • The number of key-value pairs stored in the hash object is smaller than or equal to the value of list-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the hash object are smaller than or equal to the value of list-max-ziplist-value.	Default value: 64.
list-max-ziplist-entries	A list object uses ziplist encoding only if the list object meets both of the following conditions: • The number of key-value pairs stored in the list object is smaller than or equal to the value of list-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the list object are smaller than or equal to the value of list-max-ziplist-value.	Default value: 512.
list-max-ziplist-value	A list object uses ziplist encoding only if the list object meets both of the following conditions: • The number of key-value pairs stored in the list object is smaller than or equal to the value of list-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the list object are smaller than or equal to the value of list-max-ziplist-value.	Default value: 64.
set-max-intset-entries	A set object uses intset encoding only if: the number of entries is smaller than or equal to the value of set-max-intset-entries and all entries are decimal integers.	Default value: 512.

Parameter	Description	Value
zset-max-ziplist-entries	A zset object uses ziplist encoding only if the zset object meets both of the following conditions: • The number of key-value pairs stored in the zset object is smaller than or equal to the value of zset-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the zset object are smaller than or equal to the value of zset-max-ziplist-value.	Default value: 128.
zset-max-ziplist-value	A zset object uses ziplist encoding only if the zset object meets both of the following conditions: • The number of key-value pairs stored in the zset object is smaller than or equal to the value of zset-max-ziplist-entries. • The string lengths of keys and values in all key-value pairs stored in the zset object are smaller than or equal to the value of zset-max-ziplist-value.	Default value: 64.

Parameter	Description	Value
notify-keyspace-events	The keyspace notifications allow clients to subscribe to channels or modes to receive events where Redis datasets were modified in some way.	• K: the keyspace notifications. All notifications are prefixed with `\__keyspace\@_\_`. • E: the keyevent notifications. All notifications are prefixed with `__keyevent@__`. • g: the notifications about general commands that are non-type specific, such as DEL, EXPIRE, and RENAME. • $: the string command notifications. • l: the list command notifications. • s: the set command notifications. • h: the hash command notifications. • z: the sorted set command notifications. • x: the expiration events. The system sends an expiration event after the system deletes an expired key. • e: the eviction events. The system sends an eviction event after the system evicts a key according to the maxmemory policy. • A: the alias for g$lshzxe.

12.ApsaraDB for MongoDB

12.1. Developer Guide

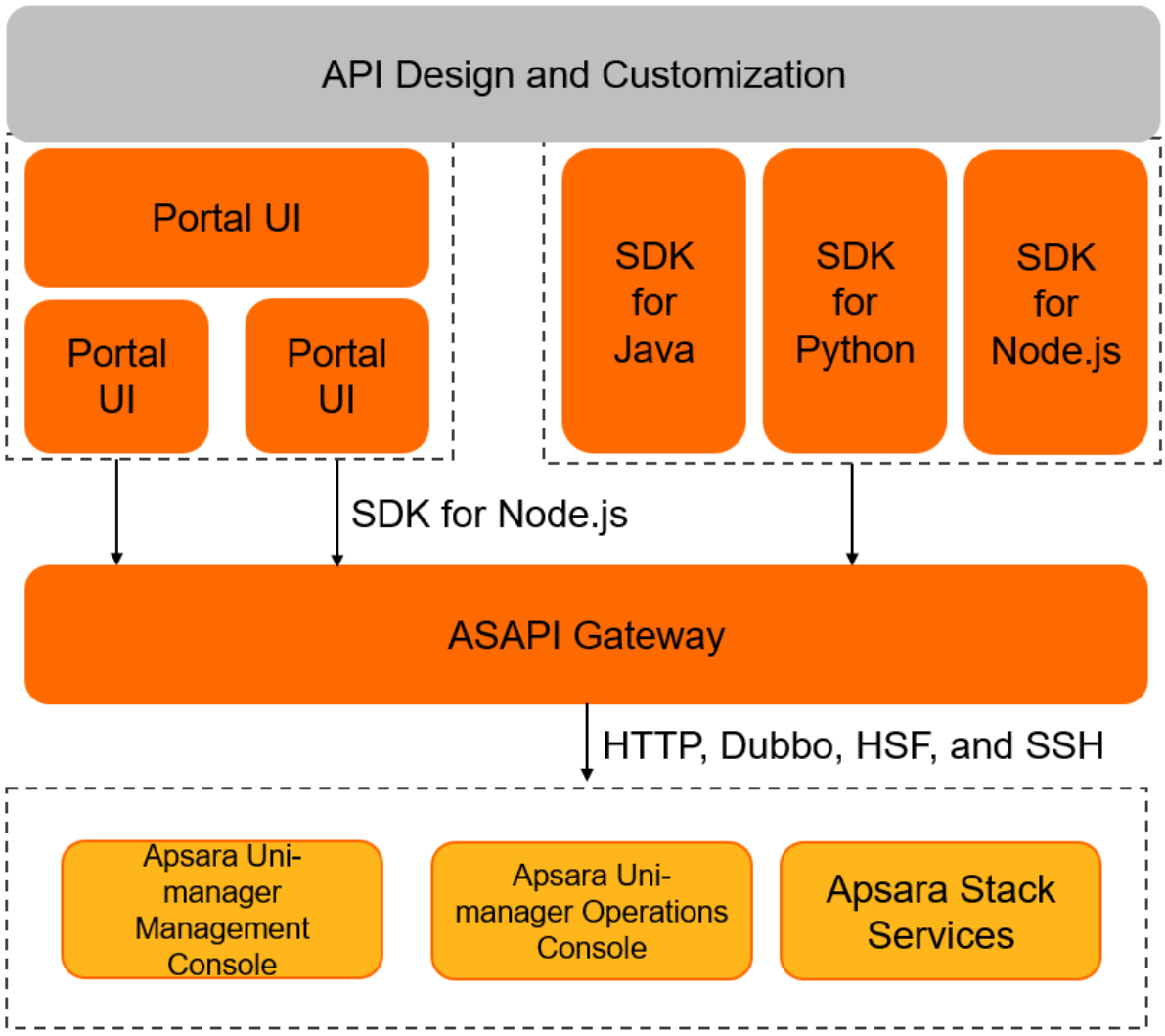
12.1.1. Use ASAPI to call Apsara Stack SDKs

12.1.1.1. 文档标题缺失，请补全后重新导出

12.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

12.1.1.1.2. Preparations

12.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

12.1.1.1.2.2. View information about API operations

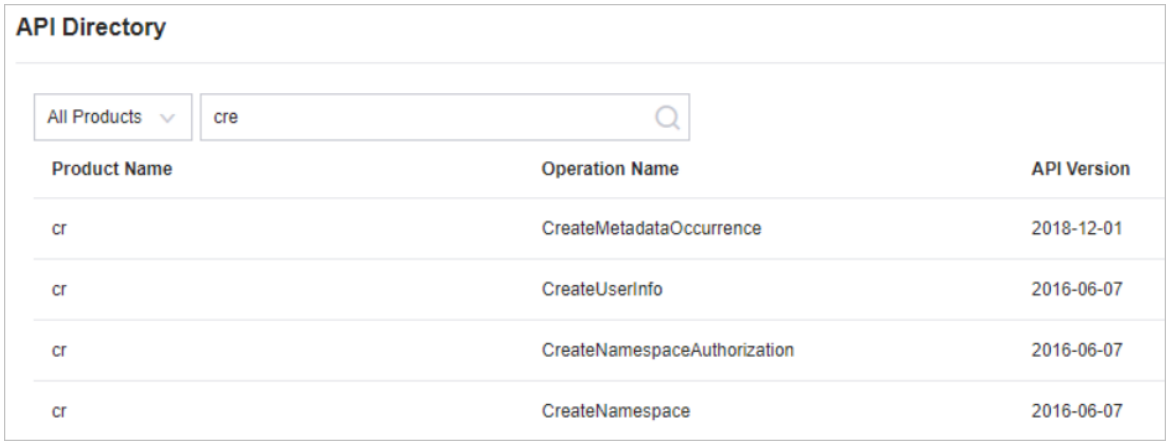
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



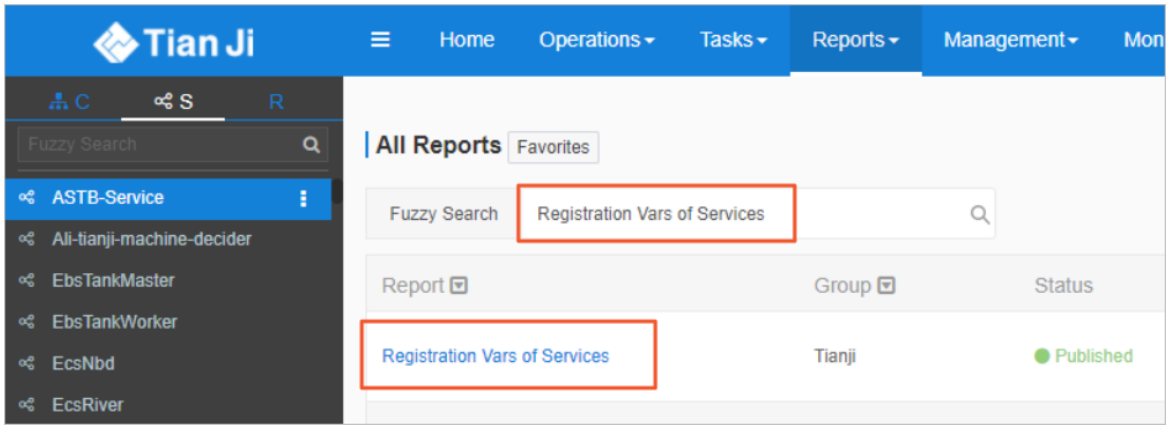
4. Then, you can view the service name, API operation name, and API operation version.

12.1.1.1.2.3. Generate an endpoint for the ASAPI

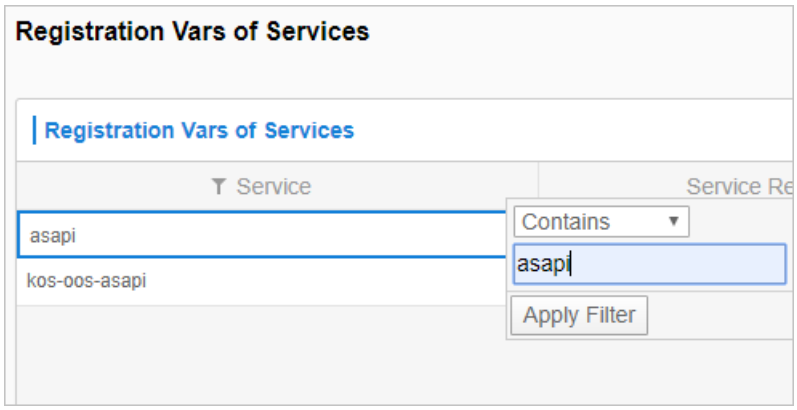
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

12.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

12.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

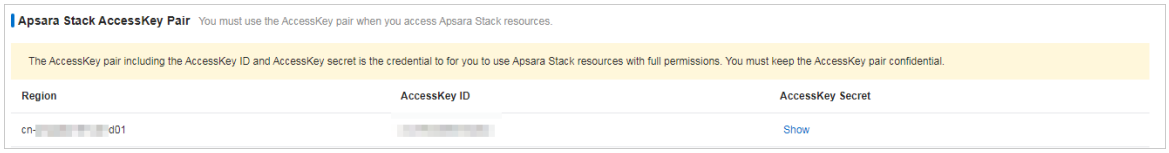
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

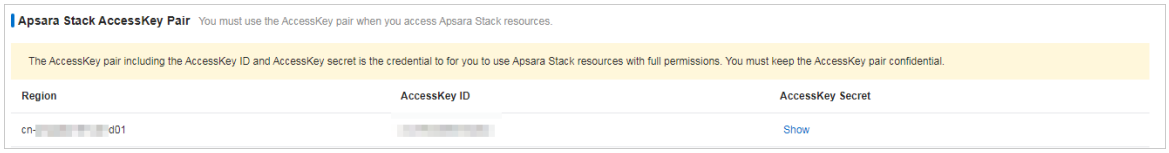
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

12.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



12.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

12.1.1.1.4. SDK description

12.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

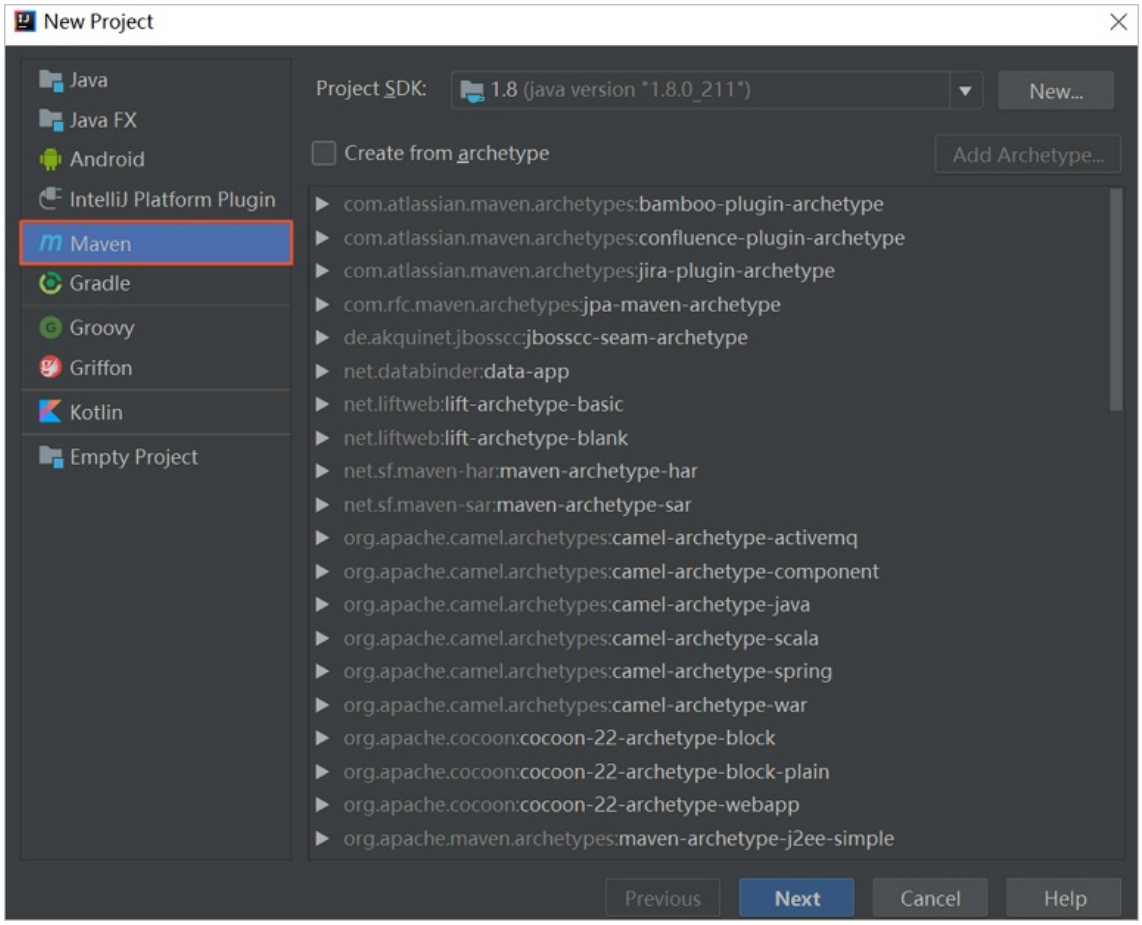
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

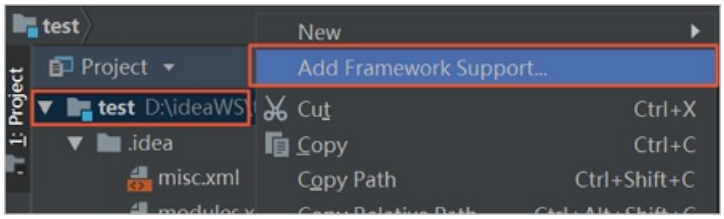
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

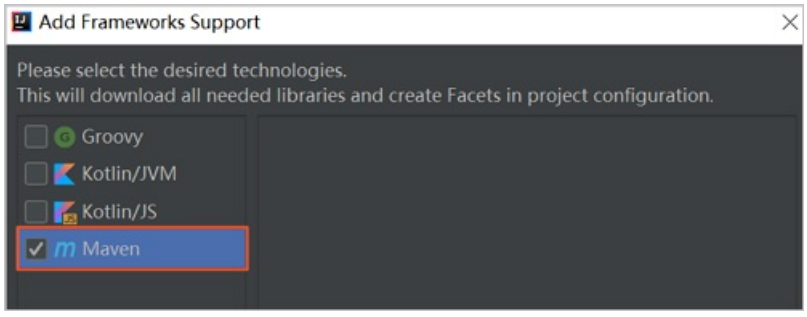
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



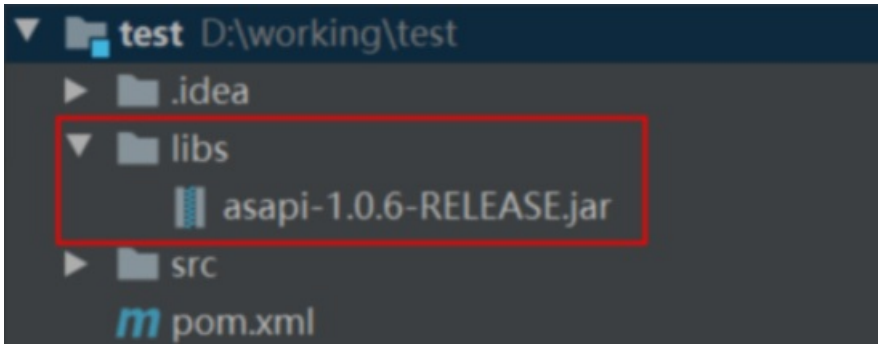
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



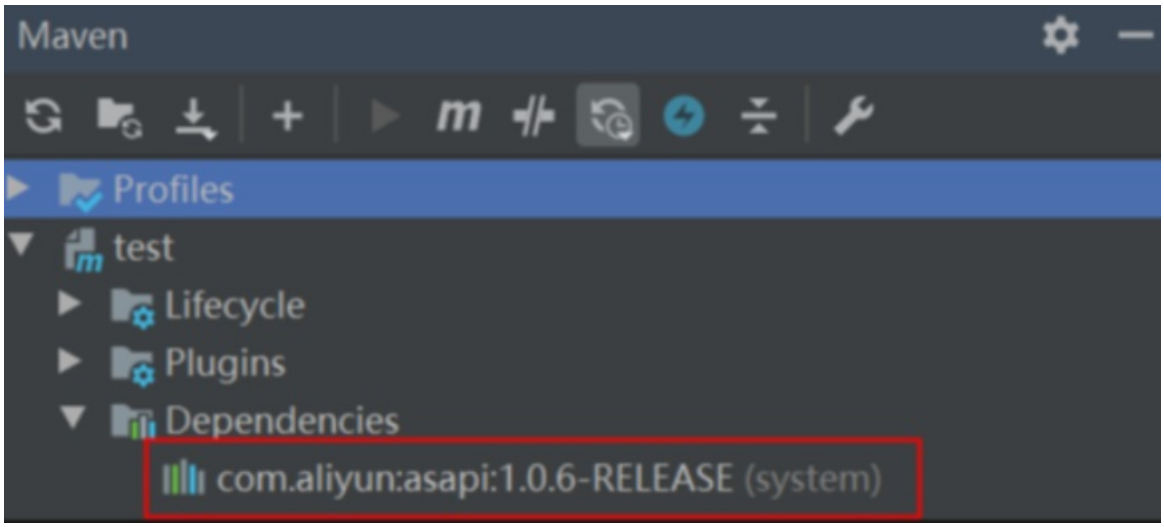
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

12.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

12.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

12.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variable.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment variable.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are configured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

12.1.1.1.5. HTTP requests

12.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

12.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

12.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

12.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

12.1.2. List of operations by function

The following tables list API operations available for use in ApsaraDB for MongoDB.

Lifecycle management

Operation	Description
CreateDBInstance	Creates and clones an ApsaraDB for MongoDB instance.

Operation	Description
ModifyDBInstanceSpec	Modifies the specifications or storage capacity of an ApsaraDB for MongoDB standalone or replica set instance.
DeleteDBInstance	Releases an ApsaraDB for MongoDB instance.
CreateShardingDBInstance	Creates or clones an ApsaraDB for MongoDB sharded cluster instance.
CreateNode	Creates a shard or mongos node for an ApsaraDB for MongoDB sharded cluster instance.
DeleteNode	Deletes a shard or mongos node in an ApsaraDB for MongoDB sharded cluster instance.
ModifyNodeSpec	Modifies the specifications or storage capacity of an ApsaraDB for MongoDB sharded cluster instance.

Region management

Operation	Description
MigrateToOtherZone	Migrates an ApsaraDB for MongoDB instance to another zone.
DescribeRegions	Views the regions and zones that an ApsaraDB for MongoDB instance can be created.
MigrateAvailableZone	Changes the zone of an ApsaraDB for MongoDB instance.

Resource management

Operation	Description
DescribeAvailableResource	Views the instances that can be created in a specified zone.

Connection management

Operation	Description
AllocatePublicNetworkAddress	Applies for a public endpoint of an ApsaraDB for MongoDB instance.
ReleasePublicNetworkAddress	Releases the public endpoint of an ApsaraDB for MongoDB instance.
ModifyInstanceVpcAuthMode	Enables or disables password-free access to an ApsaraDB for MongoDB instance from the same VPC.
DescribeShardingNetworkAddress	Views the connection information of an ApsaraDB for MongoDB sharded cluster instance.
ModifyDBInstanceConnectionString	Modifies the connection string of an ApsaraDB for MongoDB instance.

Operation	Description
ReleaseNodePrivateNetworkAddress	Releases the internal endpoint of the shard or Configserver node of a sharded cluster instance.

Instance information query

Operation	Description
DescribeReplicaSetRole	Views the roles of an ApsaraDB for MongoDB instance and their connection information.
DescribeKernelReleaseNotes	Views the release notes of the minor database engine versions of an ApsaraDB for MongoDB instance.
DescribeAvailableEngineVersion	Views the database engine versions that an ApsaraDB for MongoDB instance can be upgraded to.
DescribeDBInstances	Views the list of ApsaraDB for MongoDB instances.
DescribeDBInstanceAttribute	Views the details of an ApsaraDB for MongoDB instance.
DescribeRoleZoneInfo	Views the roles and zones of nodes in an ApsaraDB for MongoDB instance.

Instance management

Operation	Description
RestartDBInstance	Restarts an ApsaraDB for MongoDB instance.
ModifyDBInstanceMaintainTime	Modifies the maintenance window of an ApsaraDB for MongoDB instance.
ModifyDBInstanceDescription	Changes the name of an ApsaraDB for MongoDB instance.
SwitchDBInstanceHA	Switches between the primary and secondary nodes in an ApsaraDB for MongoDB instance.
UpgradeDBInstanceEngineVersion	Upgrades the database engine version of an ApsaraDB for MongoDB instance.
UpgradeDBInstanceKernelVersion	Upgrades the minor database engine version of an ApsaraDB for MongoDB instance.
ModifyDBInstanceNetExpireTime	Extends the retention period of the classic network endpoint of an ApsaraDB for MongoDB instance.

Account management

Operation	Description
DescribeAccounts	Views the database accounts of an ApsaraDB for MongoDB instance.
ResetAccountPassword	Resets the password of the root account of an ApsaraDB for MongoDB instance.
ModifyAccountDescription	Modifies the description of the root account of an ApsaraDB for MongoDB instance.

Whitelists and security groups

Operation	Description
DescribeSecurityGroupConfiguration	Views the ECS security groups to which an ApsaraDB RDS instance is added.
ModifySecurityGroupConfiguration	Modifies an ECS security group to which an ApsaraDB RDS instance is added.
DescribeSecurityIps	Views the IP whitelists of an ApsaraDB for MongoDB instance.
ModifySecurityIps	Modifies an IP whitelist of an ApsaraDB for MongoDB instance.

Key management

Operation	Description
DescribeDBInstanceTDEInfo	Views whether TDE is enabled for an ApsaraDB for MongoDB instance.
ModifyDBInstanceTDE	Modifies the transparent data encryption (TDE) status of an ApsaraDB for MongoDB instance.

SSL encryption

Operation	Description
ModifyDBInstanceSSL	Modifies the SSL settings of an ApsaraDB for MongoDB instance.
DescribeDBInstanceSSL	Views the SSL settings of an ApsaraDB for MongoDB instance.

Audit logs

Operation	Description
DescribeAuditRecords	View the audit log entries of an ApsaraDB for MongoDB instance.
DescribeAuditFiles	Views the audit log files of an ApsaraDB for MongoDB instance.
DescribeAuditPolicy	Views whether the audit log feature is enabled for an ApsaraDB for MongoDB instance.

Operation	Description
ModifyAuditLogFilter	Modifies the type of audit log entries that you want to collect for an ApsaraDB for MongoDB instance.
DescribeAuditLogFilter	Views the types of audit log entries collected for an ApsaraDB for MongoDB instance.
ModifyAuditPolicy	Enables or disables the audit log feature or set the log retention period for an ApsaraDB for MongoDB instance.

Log management

Operation	Description
DescribeSlowLogRecords	Views the slow query log entries of an ApsaraDB for MongoDB instance.
DescribeErrorLogRecords	Views the error log entries of an ApsaraDB for MongoDB instance.
DescribeRunningLogRecords	Views the operational log entries of an ApsaraDB for MongoDB instance.

Performance monitoring management

Operation	Description
DescribeDBInstancePerformance	Views the performance data of an ApsaraDB for MongoDB instance.
DescribeDBInstanceMonitor	Views the collection frequency of monitoring data for an ApsaraDB for MongoDB instance.

Parameter management

Operation	Description
DescribeParameterModificationHistory	Views the modification records of ApsaraDB for MongoDB instance parameters.
DescribeParameters	Views parameter configurations of an ApsaraDB for MongoDB instance.
ModifyParameters	Modifies the parameters of an AsparaDB for MongoDB instance.

Backup and recovery

Operation	Description
DescribeBackupPolicy	Views the backup policy of an ApsaraDB for MongoDB instance.
ModifyBackupPolicy	Modifies the backup policy of an ApsaraDB for MongoDB instance.
CreateBackup	Manually backs up an ApsaraDB for MongoDB instance.

Operation	Description
DescribeBackups	Views the backup sets of an ApsaraDB for MongoDB instance.
RestoreDBInstance	Restores data to the current ApsaraDB for MongoDB instance.
DescribeBackupDBs	Views the databases at a specified point in time or the databases in a specified backup set before you restore a database for an ApsaraDB for MongoDB instance.

12.1.3. API Reference

12.1.3.1. Lifecycle management

12.1.3.1.1. CreateDBInstance

You can call this operation to create or clone an ApsaraDB for MongoDB replica set instance.

For more information about instance types, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.

To create sharded cluster instances, you can call the **CreateShardingDBInstance** operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDBInstance	The operation that you want to perform. Set the value to **CreateDBInstance**.
ClientToken	String	Yes	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
Engine	String	Yes	MongoDB	The database engine. Set the value to **MongoDB**.
EngineVersion	String	Yes	4.0	The database engine version of the instance. Valid values: **3.2**, **3.4**, **4.0**, and **4.2**. **Note** To call this operation to clone an instance, set this value to the engine version of the source instance.
DBInstanceClass	String	Yes	dds.mongo.standard	The instance type. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.
DBInstanceStorage	Integer	Yes	10	The storage capacity of the instance. • Valid values: **10** to **3000**. Unit: GB. • The value must be a multiple of 10 GB. **Note** For more information about instance types, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.
ZoneId	String	No	cn-hangzhou-b	The zone ID of the instance. You can call the **DescribeRegions** operation to view the zones where the instance can be created.
DBInstanceDescription	String	No	Test database 1	The name of the instance. It must be 2 to 256 characters in length. The name must start with a letter, and can contain digits, letters, underscores (_), and hyphens (-).

Parameter	Type	Required	Example	Description
SecurityIPList	String	No	10.23.12.24/24	• The whitelist that contains the IP addresses that are allowed to access the instance. Separate multiple IP addresses with commas (,). Each IP address must be unique. A maximum of 1,000 IP addresses can be added. • You can enter IP addresses such as 10.23.12.24 and Classless Inter-Domain Routing (CIDR) blocks such as 10.23.12.24/24. /24 indicates the length of the IP address prefix in the CIDR block. An IP address prefix can contain 1 to 32 bits. You can also enter the percent sign (%) or 0.0.0.0/0. **Note** If you enter the percent sign (%) or 0.0.0.0/0, all IP addresses can access the instance. This may introduce security risks to the instance.
AccountPassword	String	No	Alitest! 159	The password of the root account. • The password must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include ! # $ % ^ & * ( ) _ + - = #$%^&*()_+-= • The password must be 8 to 32 characters in length.

Parameter	Type	Required	Example	Description
ChargeType	String	No	PrePaid	The billing method of the instance. Valid values: • **Postpaid**: pay-as-you-go • **Prepaid**: subscription Default value: pay-as-you-go **Note** If you set this parameter to **PrePaid**, you must also specify the **Period** parameter.
Period	Integer	No	1	The subscription period of the instance. Unit: months. Valid values: **1** to **9**, **12**, **24**, and **36**. **Note** This parameter is valid and required only if you set the **ChargeType** parameter to **PrePaid**.
NetworkType	String	No	VPC	The network type of the new instance. Valid values: • **classic** • **vpc** Default value: classic. **Note** If you set this parameter to **VPC**, you must also specify the **VpcId** and **VSwitchId** parameters.
VpcId	String	No	vpc-bpxxxxxxxx	The ID of the VPC. **Note** This parameter is valid only if you set the **NetworkType** parameter to **VPC**.

Parameter	Type	Required	Example	Description
VSwitchId	String	No	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC. **Note** This parameter is valid only if you set the **NetworkType** parameter to **VPC**.
SrcDBInstanceId	String	No	dds-bpxxxxxxxx	The ID of the source instance. This parameter can only be specified when this operation is called to clone instances. You must also specify the **BackupId** parameter or **RestoreTime** parameter.
BackupId	String	No	32994xxxx	The ID of the specific backup set. This parameter can only be specified when this operation is called to clone instances. You must also specify the **SrcDBInstanceId** parameter. **Note** You can call **DescribeBackups** to view the backup ID.

Parameter	Type	Required	Example	Description
RestoreTime	String	No	2019-03-13T12:11:14Z	The point in time of the clone operation. After you set this parameter, the data of the source instance at the specified point in time is used to create an instance. Specify the time in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time must be in UTC. **Note** • This parameter can only be specified when this operation is called to clone instances. You must also specify the **SrcDBInstanceId** parameter and the **BackupId** parameter. • You can clone instances to any restore time in the past seven days.
BusinessInfo	String	No	{ “ActivityId":"00 0000000"}	The business information. It is an additional parameter.
CouponNo	String	No	youhuiquan_promotion_option_id_for_blank	The coupon code. Default value: **youhuiquan_promotion_option_id_for_blank**.
AutoRenew	String	No	true	Indicates whether automatic renewal is enabled for the instance. Valid values: • **true**: enables automatic renewal. • **false**: disables automatic renewal. You must renew the instance manually. Default value: false. **Note** This parameter is valid only if you set the ChargeType parameter to PrePaid.

Parameter	Type	Required	Example	Description
DatabaseNames	String	No	mongodbtest	The name of the database. **Note** When calling this operation to clone instances, you can set the database that is specified by this parameter for cloning. Otherwise, all the databases of the instances will be cloned.
StorageEngine	String	No	WiredTiger	The storage engine of the instance. It must be **WiredTiger**. **Note** If you do not specify this parameter, **WiredTiger** is used.
ReplicationFactor	String	No	3	The number of nodes in the replica set instance. Valid values: **3**, **5**, and **7**. Default value: **3**.
ReadonlyReplicas	String	No	1	The number of read-only nodes. Valid values: **1 to 5**. **Note** By default, this parameter is not specified and no read-only node is created.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.
OrderId	String	2033xxxxxxxxxxx	The ID of the order.
RequestId	String	D8F1D721-6439-4257-A89C-F1E8E9C9624D	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=CreateDBInstance
&ClientToken=ETnLKlblzczshOTUbOCzxxxxxxxxxx
&Engine=MongoDB
&EngineVersion=4.0
&DBInstanceClass=dds.mongo.standard
&DBInstanceStorage=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDBInstanceResponse>
   <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
   <OrderId>2033xxxxxxxxxxx</OrderId>
   <RequestId>D8F1D721-6439-4257-A89C-F1E8E9C9624D</RequestId>
</CreateDBInstanceResponse>
```

`JSON` format

```
{
 "DBInstanceId": "dds-bpxxxxxxxx",
 "OrderId": "2033xxxxxxxxxxx",
 "RequestId": "D8F1D721-6439-4257-A89C-F1E8E9C9624D"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InsufficientBalance	Your account does not have enough balance.	The error message returned when your account does not have sufficient balance. Top up and try again.
403	RealNameAuthenticationError	Your account has not passed the real-name authentication yet.	The error message returned when the specified user has not performed real-name authentication. Perform real-name authentication and try again.
400	InvalidCapacity.NotFound	The Capacity provided does not exist in our records.	The error message returned when the configured capacity is invalid. Check the specified parameter.

HttpCode	Error code	Error message	Description
400	IdempotentParameterMismatch	Request uses a client token in a previous request but is not identical to that request.	The error message returned because the two specified requests use the same ClientToken.

12.1.3.1.2. ModifyDBInstanceSpec

You can call this operation to modify the specifications or storage capacity of an ApsaraDB for MongoDB replica set instance.

This operation is applicable only to replica set instances. You can call the **ModifyNodeSpec**, **CreateNode**, or **DeleteNode** operation to modify the configurations of a sharded cluster instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceSpec	The operation that you want to perform. Set the value to**ModifyDBInstanceSpec**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
DBInstanceClass	String	No	dds.mongo.standard	The instance type. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. **Note** You must specify either this parameter or the **DBInstanceStorage** parameter.

Parameter	Type	Required	Example	Description
DBInstanceStorage	String	No	50	The storage capacity of the instance. • Valid values: **10** to **3000**. Unit: GB. The values of this parameter are dependent on the instance types. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. • The value must be a multiple of 10 GB. **Note** • You must specify either this parameter or the**DBInstanceStorage** parameter. • Storage capacity can be scaled down only on subscription replica set instances. The new storage capacity you specify must be greater than the used storage space.
OrderType	String	No	UPGRADE	The type of configuration changes performed. Default value: DOWNGRADE. Valid values: • **UPGRADE**: The specifications are upgraded. • **DOWNGRADE**: The specifications are downgraded. **Note** This parameter is only applicable to instances whose billing method is subscription.

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	true	Specifies whether automatic payment is enabled for the instance. Valid values: • **true**: enables automatic payment. Make sure that your account has sufficient balance. • **false**: Automatic payment is not enabled. You must make payments in the console. Payment instructions: Log on to the console. In the upper-right corner, click **Billing Management** and select **Billing Management** from the drop-down list. The Billing Management page appears. In the left-side navigation pane, click **Bills**. On the Unpaid tab, click Make a Payment in the Actions column corresponding to the bill you want to pay. Default value: **true**.
BusinessInfo	String	No	{ “ActivityId":"00 0000000"}	The business information.
ReplicationFactor	String	No	3	The number of nodes in the instance. • Valid values for a replica set instance: **3, 5, and 7**. • Valid values for a standalone instance: **1**.
CouponNo	String	No	youhuiquan_promotion_option_id_for_blank	The coupon code. Default value:**youhuiquan_promotion_option_id_for_blank**.
EffectiveTime	String	No	Immediately	The time when the modified configuration values take effect. Valid values: • **Immediately**: The settings take effect immediately. • **MaintainTime**: The settings will take effect during the maintenance period of the instance. Default value: **Immediately**.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID of the instance. You can call the **DescribeDBInstanceAttribute** operation to view the region ID of the instance.
ReadonlyReplicas	String	No	1	The number of read-only nodes. Valide values: **1** to **5**.

Response parameters

Parameter	Type	Example	Description
OrderId	String	2033xxxxxxxx	The ID of the order.
RequestId	String	C5662998-62BE-4C7F-961D-7DFE775DD813	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceSpec
&DBInstanceId=dds-bpxxxxxxxx
&DBInstanceStorage=50
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceSpecResponse>
      <OrderId>2033xxxxxxxx</OrderId>
      <RequestId>C5662998-62BE-4C7F-961D-7DFE775DD813</RequestId>
</ModifyDBInstanceSpecResponse>
```

`JSON` format

```
{
    "OrderId": "2033xxxxxxxx",
    "RequestId": "C5662998-62BE-4C7F-961D-7DFE775DD813"
}
```

12.1.3.1.3. DeleteDBInstance

You can call this operation to release an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

> **Note** After an instance is released, all the data in the instance is lost and cannot be retrieved. Proceed with caution.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteDBInstance	The operation that you want to perform. Set the value to **DeleteDBInstance**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	72651AF9-7897-41A7-8B67-6C15C7F26A0A	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DeleteDBInstance
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteDBInstanceResponse>
   <RequestId>72651AF9-7897-41A7-8B67-6C15C7F26A0A</RequestId>
</DeleteDBInstanceResponse>
```

`JSON` format

```
{
 "RequestId": "72651AF9-7897-41A7-8B67-6C15C7F26A0A"
}
```

12.1.3.1.4. CreateShardingDBInstance

You can call this operation to create or clone a sharded cluster instance.

For more information about instance types, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.

To create replica set instances, you can call the **CreateDBInstance** operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateShardingDBInstance	The operation that you want to perform. Set the value to**CreateShardingDBInstance**.
AccountPassword	String	Yes	Alitest! 159	The password of the root account. • The password must contain at least three types of the following characters: uppercase letters, lowercase letters, digits, and special characters. Special characters include ! # $ % ^ & * ( ) _ + - = • The password must be 8 to 32 characters in length.
Engine	String	Yes	MongoDB	The database engine. Set the value to **MongoDB**.

Parameter	Type	Required	Example	Description
EngineVersion	String	Yes	4.0	The database engine version of the instance. Valid values: **3.0**, **3.4**, **4.0**, and **4.2**. **Note** To call this operation to clone an instance, set this value to the engine version of the source instance.
RegionId	String	Yes	cn-hangzhou	The region ID of the instance. You can call the **DescribeRegions** operation to view the region ID of the instance.
ZoneId	String	No	cn-hangzhou-b	The zone ID of the instance. You can call the **DescribeRegions** operation to view the zone ID of the instance.
Mongos.N.Class	String	No	dds.mongos.standard	The specifications of the mongos node. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. **N**: the specifications of the nth mongos node. For example, • **Mongos.1.Class** specifies the specifications of the first mongos node. • **Mongos.2.Class** specifies the specifications of the second mongos node. **Note** You can configure the specifications of 2 to 32 mongos nodes.

Parameter	Type	Required	Example	Description
ReplicaSet.N.Class	String	No	dds.shard.standard	The specifications of the shard node. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. **N**specifies the serial number of the shard for which the specifications are specified. For example, • **ReplicaSet.1.Class** specifies the specifications of the first shard. • **ReplicaSet.2.Class** specifies the specifications of the second shard. **Note** You can specify the specifications of 2 to 32 shards.
ReplicaSet.N.Storage	Integer	No	20	The storage space of shard N. • Valid values: **10** to **2000**. Unit: GB. • You can only specify this value in 10 GB increments. **Note** For more information about instance types, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. **N**specifies the serial number of the shard for which storage space is specified. For example, • **ReplicaSet.1.Storage** specifies the storage space of the first shard. • **ReplicaSet.2.Storage** specifies the storage space of the second shard.
ConfigServer.N.Class	String	No	dds.cs.mid	The specifications of the Configserver node. Valid value:**dds.cs.mid**. **Note** Set the specifications to one CPU core and 2 GB. You can specify the specifications of only one Configserver node. For example, set the **ConfigServer.1.Class** parameter to **dds.cs.mid**.

Parameter	Type	Required	Example	Description
ConfigServer.N.Storage	Integer	No	20	The storage space of the Configserver node. Set the value to **20**. **Note** You can set this parameter to 20 GB only. For example, set the **ConfigServer.1.Storage** parameter to **20**.
DBInstanceDescription	String	No	Test database 1	The name of the instance. It must be 2 to 256 characters in length. The name must start with a letter, and can contain digits, letters, underscores (_), and hyphens (-).
SecurityIPList	String	No	10.23.12.24/24	• The whitelist that contains the IP addresses that are allowed to access the instance. Separate multiple IP addresses with commas (,). Each IP address must be unique. A maximum of 1,000 IP addresses can be added. • You can enter IP addresses such as 10.23.12.24 and Classless Inter-Domain Routing (CIDR) blocks such as 10.23.12.24/24. /24 indicates the length of the CIDR block prefix. The prefix can be 1 to 32 bits in length. You can also enter the percent sign (%) or 0.0.0.0/0. **Note** If you enter the percent sign (%) or 0.0.0.0/0, all IP addresses can access the instance. This may introduce security risks to the instance.

Parameter	Type	Required	Example	Description
ChargeType	String	No	PrePaid	The billing method of the instance. Valid values: • **Postpaid**: pay-as-you-go • **Prepaid**: subscription Default value: pay-as-you-go **Note** If you specify this parameter to **PrePaid**, you must also specify the **Period** parameter.
Period	Integer	No	1	The subscription period of the instance. Unit: months. Valid values: **1** to **9**, **12**, **24**, and **36**. **Note** This parameter is valid and required only if you set the **ChargeType** parameter to **PrePaid**.
NetworkType	String	No	VPC	The network type of the instance. Valid values: Default value: CLASSIC. • **CLASSIC** • **VPC** **Note** If you specify this parameter to **VPC**, you must also specify the **VpcId** parameter and the**VSwitchId** parameter.
VpcId	String	No	vpc-bpxxxxxxxx	The ID of the VPC. **Note** This parameter is valid only if you set the**NetworkType** parameter to **VPC**.

Parameter	Type	Required	Example	Description
VSwitchId	String	No	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC. **Note** This parameter is valid only if you set the**NetworkType** parameter to **VPC**.
SrcDBInstanceId	String	No	dds-bpxxxxxxxx	The ID of the source instance. This parameter can only be specified when this operation is called to clone instances. You must also specify the **RestoreTime** parameter.
RestoreTime	String	No	2019-03-08T02:30:25Z	The point in time at which the instance to be cloned will be restored. After you set this parameter, the data of the source instance at the specified point in time is used to create an instance. Specify the time in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time must be in UTC. This parameter can be specified only if this operation is called to clone instances. You must also specify the**SrcDBInstanceId** parameter. **Note** You can clone instances to any restore time in the past seven days.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
StorageEngine	String	No	WiredTiger	The storage engine of the database. Only **WiredTiger** is supported.
AutoRenew	String	No	false	Specifies whether to enable automatic renewal for the instance. Valid values: • **true**: enables automatic renewal. • **false**: disables automatic renewal. You must renew the instance manually. Default value: **false**. **Note** This parameter is valid only if you set the ChargeType parameter to **PrePaid**.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.
OrderId	String	2033xxxxxxxxxxx	The ID of the order.
RequestId	String	D8F1D721-6439-4257-A89C-F1E8E9C9623D	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=CreateShardingDBInstance
&Engine=MongoDB
&EngineVersion=4.0
&AccountPassword=Alitest! 159
&ZoneId=cn-hangzhou-b
&ClientToken=ETnLKlblzczshOTUbOCzxxxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateDBInstanceResponse>
      <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
      <OrderId>2033xxxxxxxxxxx</OrderId>
      <RequestId>D8F1D721-6439-4257-A89C-F1E8E9C9623D</RequestId>
</CreateDBInstanceResponse>
```

`JSON` format

```
{
    "DBInstanceId": "dds-bpxxxxxxxx",
    "OrderId": "2033xxxxxxxxxxx",
    "RequestId": "D8F1D721-6439-4257-A89C-F1E8E9C9623D"
}
```

12.1.3.1.5. CreateNode

You can call this operation to create the shard or mongos node for an ApsaraDB for MongoDB sharded cluster instances.

This operation is applicable only to sharded cluster instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateNode	The operation that you want to perform. Set the value to **CreateNode**.
NodeClass	String	Yes	dds.shard.mid	The specification of the shard or mongos node. For more information, see Instance types.
NodeType	String	Yes	shard	The type of the node. Valid values: • **shard** • **mongos**
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the sharded cluster instance.

Parameter	Type	Required	Example	Description
NodeStorage	Integer	No	10	The storage capacity of the node. You must specify this parameter if you set the **NodeType** parameter to **shard**. • Valid values: **10** to **2000**. Unit: GB. • The value must be a multiple of 10 GB.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
FromApp	String	No	OpenApi	The source of the request. Valid values: • **OpenApi**: the ApsaraDB for MongoDB API • **mongo_buy**: the ApsaraDB for MongoDB console
AutoPay	Boolean	No	true	Specifies whether to enable automatic payment for the instance. Valid values: • **true**: enables automatic payment. Make sure that your account has sufficient balance. • **false**: disables automatic payment. You must perform the following operations to pay for the instance: Log on to the ApsaraDB for MongoDB console. In the top navigation bar, click Expenses. The Billing Management page appears. In the left-side navigation pane, click Bills. On the Unpaid tab, click Make a Payment in the Actions column for the bill that you want to pay. Default value: **true**.

Response parameters

Parameter	Type	Example	Description
NodeId	String	d-bpxxxxxxxxxxxxxx	The ID of the node.

Parameter	Type	Example	Description
OrderId	String	2034xxxxxxxx	The ID of the order.
RequestId	String	7D48FB19-20CA-4725-A870-3D8F5CE69F14	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=CreateNode
&NodeClass=dds.shard.mid
&NodeType=shard
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateNodeResponse>
   <OrderId>2034xxxxxxxx</OrderId>
   <RequestId>7D48FB19-20CA-4725-A870-3D8F5CE69F14</RequestId>
</CreateNodeResponse>
```

`JSON` format

```
{
 "OrderId": "2034xxxxxxxx",
 "RequestId": "7D48FB19-20CA-4725-A870-3D8F5CE69F14"
}
```

12.1.3.1.6. DeleteNode

You can call this operation to delete a shard or mongos in an ApsaraDB for MongoDB sharded cluster instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- A sharded cluster instance is used.
- The number of shard or mongos nodes in the instance must be greater than two.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteNode	The operation that you want to perform. Set the value to **DeleteNode**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
NodeId	String	Yes	s-bpxxxxxxxx	The ID of the shard or mongos node to be deleted. You can call the DescribeDBInstanceAttribute operation to view the ID.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
OrderId	String	2033xxxxxxxxxxx	The ID of the order.
RequestId	String	9F9BDE64-BF30-41F3-BD29-C19CE4AB3404	The ID of the request.
TaskId	Integer	111111111	The ID of the task.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DeleteNode
&NodeId=s-bpxxxxxxxx
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNodeResponse>
   <RequestId>9F9BDE64-BF30-41F3-BD29-C19CE4AB3404</RequestId>
   <TaskId>111111111</TaskId>
</DeleteNodeResponse>
```

`JSON` format

```
{
    "RequestId": "9F9BDE64-BF30-41F3-BD29-C19CE4AB3404",
    "TaskId": 111111111
}
```

12.1.3.1.7. ModifyNodeSpec

You can call this operation to modify the specifications and storage capacity of the nodes in an ApsaraDB for MongoDB sharded cluster instance.

This operation is applicable only to sharded cluster instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNodeSpec	The operation that you want to perform. Set the value to **ModifyNodeSpec**.
NodeId	String	Yes	d-bpxxxxxxxx	The ID of the shard or mongos node in the sharded cluster instance. You can call the **DescribeDBInstanceAttribute** operation to view the ID. **Note** If you set this parameter to the ID of a shard, you must also specify the **NodeStorage** parameter.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
NodeClass	String	No	dds.shard.standard	The specifications of the mongos node. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*. **Note** You must specify this parameter or the **NodeStorage** parameter.
NodeStorage	Integer	No	20	The storage capacity for the shard node. • Valid values: **10** to **2000**. Unit: GB. • The value must be a multiple of 10 GB. **Note** • You must specify this parameter or the **NodeClass** parameter. • This parameter is valid only if you set the **NodeId** parameter to the ID of a shard.
ClientToken	String	No	ETnLKlblzczshOTUbOCzxxxxxxxxxx	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	true	Specifies whether to enable automatic payment for the instance. Valid values: • **true**: enables automatic payment. Make sure that your account has sufficient balance. • **false**: disables automatic payment. You must perform the following operations to pay for the instance: Log on to the ApsaraDB for MongoDB console. In the top navigation bar, click **Expenses**. The **Billing Management** page appears. In the left-side navigation pane, click **Bills**. On the Unpaid tab, click Make a Payment in the Actions column for the bill that you want to pay. Default value: **true**.
EffectiveTime	String	No	Immediately	The time when the new settings take effect. Valid values: • **Immediately**: The settings take effect immediately. • **MaintainTime**: The settings take effect during the maintenance period of the instance. Default value: **Immediately**.
FromApp	String	No	OpenApi	The source of the request. Valid values: • **OpenApi**: the ApsaraDB for MongoDB API • **mongo_buy**: the ApsaraDB for MongoDB console
OrderType	String	No	UPGRADE	The type of the order. Valid values: • **UPGRADE** • **DOWNGRADE**

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
OrderId	String	2033xxxxxxxxx	The ID of the order.
RequestId	String	EFFC5788-8BB5-41B5-9F15-9CFC5A0E8FCC	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.aliyuncs.com/? Action=ModifyNodeSpec
&NodeId=d-bpxxxxxxxx
&DBInstanceId=dds-bpxxxxxxxx
&NodeClass=dds.shard.standard
&NodeStorage=20
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyNodeSpecResponse>
   <OrderId>2033xxxxxxxxx</OrderId>
   <RequestId>EFFC5788-8BB5-41B5-9F15-9CFC5A0E8FCC</RequestId>
</ModifyNodeSpecResponse>
```

`JSON` format

```
{
    "OrderId": "2033xxxxxxxx",
    "RequestId": "EFFC5788-8BB5-41B5-9F15-9CFC5A0E8FCC"
}
```

12.1.3.2. Region management

12.1.3.2.1. MigrateToOtherZone

You can call this operation to migrate an ApsaraDB for MongoDB instance to another zone.

This operation is applicable only to replica set instances, but not to sharded cluster instances.

Note If you have applied for a public endpoint of the instance, you must first call the **ReleasePublicNetworkAddress** operation to release the public endpoint.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	MigrateToOtherZone	The operation that you want to perform. Set the value to **MigrateToOtherZone**.
InstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** You must specify the **Vswitch** parameter if the network type of the instance is VPC.
ZoneId	String	Yes	cn-hangzhou-b	The ID of the destination zone to which you want to migrate the MongoDB instance. **Note** • The destination and source zones are in the same region. • You can call the **DescribeRegions** operation to query the zone IDs.
EffectiveTime	String	No	Immediately	The time when the instance is migrated to the destination zone. Valid values: • **Immediately** • **MaintainTime**: The instance will be migrated during the maintenance period of the instance. Default value: **Immediately**.
VSwitchId	String	No	vsw-bpxxxxxxxx	The ID of the vSwitch in the destination zone. **Note** This parameter can be used only when the network type of the instance is VPC.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0FDDC511-7252-4A4A-ADDA-5CB1BF63873D	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=MigrateToOtherZone
&DBInstanceId=dds-bpxxxxxxxx
&ZoneId=cn-hangzhou-b
&EffectiveTime=Immediately
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>0FDDC511-7252-4A4A-ADDA-5CB1BF63873D</RequestId>
```

`JSON` format

```
{
 "RequestId": "0FDDC511-7252-4A4A-ADDA-5CB1BF63873D"
}
```

12.1.3.2.2. DescribeRegions

You can call this operation to view the regions and zones that an ApsaraDB for MongoDB instance can be created.

Before you call the CreateDBInstance or CreateShardingDBInstance operation to create an instance, you must call this operation to view the regions and zones that the that ApsaraDB for MongoDB instance can be created.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to **DescribeRegions**.

Response parameters

Parameter	Type	Example	Description
Regions	Array of DdsRegion		An array that consists of the information of regions.
DdsRegion			
RegionId	String	cn-qingdao	The ID of the region.
Zones	Array of Zone		An array that consists of the information of zones.
Zone			
VpcEnabled	Boolean	true	Indicates whether VPC is supported. Valid values: • **true** • **false**
ZoneId	String	cn-hangzhou-b	The ID of the zone.
RequestId	String	4E46C22C-D3B7-4DB8-9C76-63851BE68E20	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeRegions
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRegionsResponse>
   <RequestId>4E46C22C-D3B7-4DB8-9C76-63851BE68E20</RequestId>
   <Regions>
      <DdsRegion>
         <RegionId>cn-hangzhou</RegionId>
         <Zones>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-i</ZoneId>
            </Zone>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-b</ZoneId>
            </Zone>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-d</ZoneId>
            </Zone>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-f</ZoneId>
            </Zone>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-MAZ5(b,e,f)</ZoneId>
            </Zone>
            <Zone>
               <VpcEnabled>true</VpcEnabled>
               <ZoneId>cn-hangzhou-g</ZoneId>
            </Zone>
         </Zones>
      </DdsRegion>
   </Regions>
</DescribeRegionsResponse>
```

`JSON` format

```
{
 "RequestId": "4E46C22C-D3B7-4DB8-9C76-63851BE68E20",
 "Regions": {
  "DdsRegion": [
   {
    "RegionId": "cn-hangzhou",
    "Zones": {
     "Zone": [
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-i"
      },
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-b"
      },
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-d"
      },
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-f"
      },
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-MAZ5(b,e,f)"
      },
      {
       "VpcEnabled": true,
       "ZoneId": "cn-hangzhou-g"
      }
     ]
    }
   }
  ]
 }
}
```


12.1.3.2.3. MigrateAvailableZone

You can call this operation to change the zone of an ApsaraDB for MongoDB instance.

This operation is applicable only to replica set instances, but not to sharded cluster instances.

> **Note** If you have applied for a public endpoint of the instance, you must first call **ReleasePublicNetworkAddress** to release the public endpoint.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	MigrateAvailableZone	The operation that you want to perform. Set the value to **MigrateAvailableZone**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** You must specify the **Vswitch** parameter if the network type of the instance is VPC.
ZoneId	String	Yes	cn-hangzhou-b	The ID of the destination zone to which you want to migrate the ApsaraDB for MongoDB instance. **Note** • The destination zone must be in the same region as the current zone of the instance. • You can call the **DescribeRegions** operation to view the zone IDs.
Vswitch	String	No	vsw-bpxxxxxxxx	The ID of the vSwitch in the destination zone. **Note** This parameter can be used only when the network type of the instance is VPC.
EffectiveTime	String	No	Immediately	The time when the instance is migrated to the destination zone. Valid values: • **Immediately**: The instance will be migrated immediately. • **MaintainTime**: The instance will be migrated during the maintenance period of the instance. Default value: **Immediately**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0FDDC511-7252-4A4A-ADDA-5CB1BF63873D	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=MigrateAvailableZone
&DBInstanceId=dds-bpxxxxxxxx
&ZoneId=cn-hangzhou-b
&EffectiveTime=Immediately
&<Common request parameters>
```

Sample success responses

`XML` format

```
<MigrateAvailableZoneResponse>
   <RequestId>0FDDC511-7252-4A4A-ADDA-5CB1BF63873D</RequestId>
</MigrateAvailableZoneResponse>
```

`JSON` format

```
{
 "RequestId": "0FDDC511-7252-4A4A-ADDA-5CB1BF63873D"
}
```

12.1.3.3. Resource management

12.1.3.3.1. DescribeAvailableResource

You can call this operation to view the ApsaraDB for MongoDB instances that can be created in a specified zone.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAvailableResource	The operation that you want to perform. Set the value to **DescribeAvailableResource**.
RegionId	String	Yes	cn-hangzhou	The region ID. You can call the **DescribeRegions** operation to view the region IDs.

Parameter	Type	Required	Example	Description
ZoneId	String	No	cn-hangzhou-h	The zone ID of the instance. You can call the **DescribeRegions** operation to view the zone IDs.
InstanceChargeType	String	No	PrePaid	The billing method. Valid values: • PrePaid: subscription. • PostPaid: pay-as-you-go. **Note** Default value: PrePaid.

Response parameters

Parameter	Type	Example	Description
RequestId	String	344EE51D-8850-4935-B68B-58A8F4DCE3BD	The ID of the request.
SupportedDBTypes	Array of SupportedDBType		The database type supported.
SupportedDBType			
AvailableZones	Array of AvailableZone		The zone ID of the instance.
AvailableZone			
RegionId	String	cn-hangzhou	The region ID of the instance.
SupportedEngineVersions	Array of SupportedEngineVersion		The versions of the storage engine.
SupportedEngineVersion			
SupportedEngines	Array of SupportedEngine		The storage engine supported.
SupportedEngine			

Parameter	Type	Example	Description
Engine	String	WiredTiger	The storage engine of the instance.
SupportedNodeTypes	Array of SupportedNodeType		The instance types supported.
SupportedNodeType			
AvailableResources	Array of AvailableResource		The details of available resources.
AvailableResource			
InstanceClass	String	dds.mongo.2xlarge	The category of the instance.
InstanceClassRemark	String	8 vCPUs, 32 GiB (maximum connections: 8000 IOPS: 14000)	The instance type.
NetworkTypes	String	VPC	The network type of the instance.
NodeType	String	3	The number of nodes in the instance.
Version	String	4.0	The database engine version of the instance.
ZoneId	String	cn-hangzhou-h	The zone ID of the instance.
DbType	String	sharding	The database engine of the instance.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAvailableResource
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>344EE51D-8850-4935-B68B-58A8F4DCE3BD</RequestId>
<SupportedDBTypes>
    <DbType>sharding</DbType>
</SupportedDBTypes>
<SupportedDBTypes>
    <AvailableZones>
        <ZoneId>cn-hangzhou-h</ZoneId>
        <RegionId>cn-hangzhou</RegionId>
    </AvailableZones>
    <AvailableZones>
        <SupportedEngineVersions>
            <Version>4.0</Version>
        </SupportedEngineVersions>
        <SupportedEngineVersions>
            <SupportedEngines>
                <Engine>WiredTiger</Engine>
            </SupportedEngines>
            <SupportedEngines>
                <SupportedNodeTypes>
                    <NetworkTypes>VPC</NetworkTypes>
                    <NodeType>3</NodeType>
                </SupportedNodeTypes>
                <SupportedNodeTypes>
                    <AvailableResources>
                        <InstanceClassRemark>8 vCPUs, 32 GiB (maximum connections: 8000 IOP
S: 14000)</InstanceClassRemark>
                        <InstanceClass>dds.mongo.2xlarge</InstanceClass>
                    </AvailableResources>
                </SupportedNodeTypes>
            </SupportedEngines>
        </SupportedEngineVersions>
    </AvailableZones>
</SupportedDBTypes>
```

`JSON` format

```
{
    "RequestId":"344EE51D-8850-4935-B68B-58A8F4DCE3BD",
    "SupportedDBTypes":[
        {
            "DbType":"sharding"
        },
        {
            "AvailableZones":[
                {
                    "ZoneId":"cn-hangzhou-h",
                    "RegionId":"cn-hangzhou"
                },
                {
                    "SupportedEngineVersions":[
                        {
                            "Version":"4.0"
                        },
                        {
                            "SupportedEngines":[
                                {
                                    "Engine":"WiredTiger"
                                },
                                {
                                    "SupportedNodeTypes":[
                                        {
                                            "NetworkTypes":"VPC",
                                            "NodeType":"3"
                                        },
                                        {
                                            "AvailableResources":[
                                                {
                                                    "InstanceClassRemark":"8 vCPUs, 32 GiB
(maximum connections: 8000 IOPS: 14000)",
                                                    "InstanceClass":"dds.mongo.2xlarge"
                                                }
                                            ]
                                        }
                                    ]
                                }
                            ]
                        }
                    ]
                }
            ]
        }
    ]
}
```


12.1.3.4. Connection management

12.1.3.4.1. AllocatePublicNetworkAddress

You can call this operation to assign a public endpoint to an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AllocatePublicNetworkAddress	The operation that you want to perform. Set the value to **AllocatePublicNetworkAddress**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	s-bpxxxxxxxx	The ID of the mongos, shard, or Configserver node in the sharded cluster instance. **Note** • This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance. • You can call the DescribeDBInstanceAttribute operation to view the ID of the mongos, shard, or Configserver node.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B6D17591-B48B-4D31-9CD6-9B9796B2270A	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.aliyuncs.com/? Action=AllocatePublicNetworkAddress
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocatePublicNetworkAddressResponse>
   <RequestId>B6D17591-B48B-4D31-9CD6-9B9796B2270A</RequestId>
</AllocatePublicNetworkAddressResponse>
```

`JSON` format

```
{
 "RequestId": "B6D17591-B48B-4D31-9CD6-9B9796B2270A"
}
```

12.1.3.4.2. ReleasePublicNetworkAddress

You can call this operation to release the public endpoint of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReleasePublicNetworkAddress	The operation that you want to perform. Set the value to **ReleasePublicNetworkAddress**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.

Parameter	Type	Required	Example	Description
NodeId	String	No	s-bpxxxxxxxx	A sharded cluster instance consists of three components: mongos, shard, and Configserver. **Note** • This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance. • You can call the **DescribeDBInstanceAttribute** operation to view the ID of the mongos, shard, or Configserver node.

Response parameters

Parameter	Type	Example	Description
RequestId	String	1D6AFE36-1AF5-4DE4-A954-672159D4CC69	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ReleasePublicNetworkAddress
&DBInstanceId=dds-bpxxxxxxxx
&s-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleasePublicNetworkAddressResponse>
   <RequestId>B6D17591-B48B-4D31-9CD6-9B9796B2270A</RequestId>
</ReleasePublicNetworkAddressResponse>
```

`JSON` format

```
{
 "RequestId": "1D6AFE36-1AF5-4DE4-A954-672159D4CC69"
}
```

12.1.3.4.3. ModifyInstanceVpcAuthMode

You can call this operation to enable or disable password-free access from the same VPC as an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- A replica set or sharded cluster instance is used.
- The database engine version of the instance is MongoDB 4.0 or 4.2. You can call the **DescribeDBInstanceAttribute** operation to view the database engine version of the instance. If necessary, you can call the **UpgradeDBInstanceEngineVersion** operation to upgrade the database engine.
- The network type of the instance must be VPC.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyInstanceVpcAuthMode	The operation that you want to perform. Set the value to **ModifyInstanceVpcAuthMode**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
RegionId	String	No	cn-hangzhou	The region ID of the instance. You can call the **DescribeDBInstanceAttribute** operation to view the region ID of the instance.
NodeId	String	No	s-bpxxxxxxxx	The ID of the mongos node in the sharded cluster instance. **Note** This parameter is valid only if you select a sharded cluster instance.
VpcAuthMode	String	No	Open	Specifies whether to enable password-free access within the VPC. Valid values: • **Open**: enables password-free access within the VPC. • **Close**: disables password-free access within the VPC.

Response parameters

Parameter	Type	Example	Description
RequestId	String	BA51E9D9-B14A-4542-B6E6-7DE00BECCB8C	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyInstanceVpcAuthMode
&DBInstanceId=dds-bpxxxxxxxx
&VpcAuthMode=Open
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyInstanceVpcAuthModeResponse>
      <RequestId>BA51E9D9-B14A-4542-B6E6-7DE00BECCB8C</RequestId>
</ModifyInstanceVpcAuthModeResponse>
```

`JSON` format

```
{
    "RequestId": "BA51E9D9-B14A-4542-B6E6-7DE00BECCB8C"
}
```

12.1.3.4.4. DescribeShardingNetworkAddress

You can call this operation to view the connection information of an ApsaraDB for MongoDB sharded cluster instance.

This operation supports sharded cluster instances only.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeShardingNetworkAddress	The operation that you want to perform. Set the value to **DescribeShardingNetworkAddress**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos, shard, and Configserver node in the sharded cluster instance. **Note** You can call the **DescribeDBInstanceAttribute** operation to view the ID of the mongos, shard, or Configserver node.

Response parameters

Parameter	Type	Example	Description
CompatibleConnections	Array of CompatibleConnection		An array that consists of the endpoints of DynamoDB instances.
CompatibleConnection			
ExpiredTime	String	2591963	The remaining period of the classic network endpoint. Unit: seconds.
IPAddress	String	10.140.xxx.xx	The IP address of the instance.
NetworkAddress	String	dds-bpxxxxxxxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the instance.
NetworkType	String	VPC	The network type of the endpoint. Valid values: • **VPC** • **Classic** • **Public**
Port	String	3717	The port number.
VPCId	String	vpc-bpxxxxxxxx	The ID of the VPC. **Note** This parameter is returned when the network type is VPC.

Parameter	Type	Example	Description
VswitchId	String	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC. **Note** This parameter is returned when the network type is VPC.
NetworkAddresses	Array of NetworkAddress		An array that consists of the endpoints of ApsaraDB for MongoDB instances.
NetworkAddress			
ExpiredTime	String	2591963	The remaining period of the classic network endpoint. Unit: seconds.
IPAddress	String	10.140.xxx.xx	The IP address of the instance.
NetworkAddress	String	s-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the instance.
NetworkType	String	VPC	The network type of the endpoint. • **VPC** • **Classic** • **Public**
NodeId	String	s-bpxxxxxxxx	The ID of the mongos node.
NodeType	String	mongos	The type of the node. Valid values: • **mongos** • **shard** • **configserver**
Port	String	3717	The port number.
Role	String	Primary	The role of the node. Valid values: • Primary • Secondary

Parameter	Type	Example	Description
VPCId	String	vpc-bpxxxxxxxx	The ID of the VPC. **Note** This parameter is returned when the network type is **VPC**.
VswitchId	String	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC. **Note** This parameter is returned when the network type is **VPC**.
RequestId	String	18D8AAFD-6BEB-420F-8164-810CB0C0AA39	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeShardingNetworkAddress
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CompatibleConnections>
    <NetworkAddress>dds-bpxxxxxxxxxxxxx.mongodb.rds.aliyuncs.com</NetworkAddress>
    <VPCId>vpc-bpxxxxxxxx</VPCId>
    <NetworkType>VPC</NetworkType>
    <ExpiredTime>2591963</ExpiredTime>
    <Port>3717</Port>
    <IPAddress>10.140.xxx.xx</IPAddress>
    <VswitchId>vsw-bpxxxxxxxx</VswitchId>
</CompatibleConnections>
<RequestId>18D8AAFD-6BEB-420F-8164-810CB0C0AA39</RequestId>
<NetworkAddresses>
    <Role>Primary</Role>
    <NetworkAddress>s-bpxxxxxxxx.mongodb.rds.aliyuncs.com</NetworkAddress>
    <VPCId>vpc-bpxxxxxxxx</VPCId>
    <NetworkType>VPC</NetworkType>
    <NodeType>mongos</NodeType>
    <ExpiredTime>2591963</ExpiredTime>
    <Port>3717</Port>
    <NodeId>s-bpxxxxxxxx</NodeId>
    <IPAddress>10.140.xxx.xx</IPAddress>
    <VswitchId>vsw-bpxxxxxxxx</VswitchId>
</NetworkAddresses>
```

`JSON` format

```
{
    "CompatibleConnections":[
        {
            "NetworkAddress":"dds-bpxxxxxxxxxxxxx.mongodb.rds.aliyuncs.com",
            "VPCId":"vpc-bpxxxxxxxx",
            "NetworkType":"VPC",
            "ExpiredTime":"2591963",
            "Port":"3717",
            "IPAddress":"10.140.xxx.xx",
            "VswitchId":"vsw-bpxxxxxxxx"
        }
    ],
    "RequestId":"18D8AAFD-6BEB-420F-8164-810CB0C0AA39",
    "NetworkAddresses":[
        {
            "Role":"Primary",
            "NetworkAddress":"s-bpxxxxxxxx.mongodb.rds.aliyuncs.com",
            "VPCId":"vpc-bpxxxxxxxx",
            "NetworkType":"VPC",
            "NodeType":"mongos",
            "ExpiredTime":"2591963",
            "Port":"3717",
            "NodeId":"s-bpxxxxxxxx",
            "IPAddress":"10.140.xxx.xx",
            "VswitchId":"vsw-bpxxxxxxxx"
        }
    ]
}
```


12.1.3.4.5. ModifyDBInstanceConnectionString

You can call this operation to modify the connection string of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceConnectionString	The operation that you want to perform. Set the value to **ModifyDBInstanceConnectionString**.
CurrentConnectionString	String	Yes	s-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The current connection string, which is to be modified.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NewConnectionString	String	Yes	aliyuntest111	The new connection string. It must be 8 to 64 characters in length and can contain letters and digits. It must start with a lowercase letter. **Note** You only need to specify the prefix of the connection string. The content other than the prefix cannot be modified.
NodeId	String	No	s-bpxxxxxxxx	The ID of the mongos node in the sharded cluster instance. Only one mongos ID can be specified in each call. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	FF36A84C-0694-42D0-861D-C383E8E4FAAF	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceConnectionString
&CurrentConnectionString=s-bpxxxxxxxx.mongodb.rds.aliyuncs.com
&NewConnectionString=aliyuntest111
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceConnectionStringResponse>
   <RequestId>FF36A84C-0694-42D0-861D-C383E8E4FAAF</RequestId>
</ModifyDBInstanceConnectionStringResponse>
```

`JSON` format

```
{
 "RequestId": "FF36A84C-0694-42D0-861D-C383E8E4FAAF"
}
```

12.1.3.4.6. ReleaseNodePrivateNetworkAddress

You can call this operation to release the internal endpoint of the shard or Configserver node of a sharded cluster instance.

This operation is only applicable to sharded cluster instances. For more information, see Release endpoints of shard or Configserver nodes.

> **Note** This operation releases the internal endpoint of the node. If you have also applied for a public endpoint of the node and want to release it, you can call the ReleasePublicNetworkAddress operation to release the public endpoint.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReleaseNodePrivateNetworkAddress	The operation that you want to perform. Set the value to **ReleaseNodePrivateNetworkAddress**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the sharded cluster instance.
NodeId	String	Yes	d-bpxxxxxxxx	The ID of the shard or Configserver node. **Note** You can call the DescribeDBInstanceAttribute operation to query the ID of the shard or Configserver node.

Parameter	Type	Required	Example	Description
NetworkType	String	Yes	VPC	The network type of the internal endpoint. Valid values: • **VPC** • **Classic** **Note** You can call the Describeshardingendpoint address operation to query the network type of the internal endpoint.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0FDDC511-7252-4A4A-ADDA-5CB1BF63873D	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.aliyuncs.com/? Action=ReleaseNodePrivateNetworkAddress
&DBInstanceId=dds-bpxxxxxxxx
&NodeId=d-bpxxxxxxxx
&NetworkType=VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleaseNodePrivateNetworkAddressResponse>
   <RequestId>EFD65226-08CC-4C4D-B6A4-CB3C382F67B0</RequestId>
</ReleaseNodePrivateNetworkAddressResponse>
```

`JSON` format

```
{
 "RequestId":"0FDDC511-7252-4A4A-ADDA-5CB1BF63873D"
}
```

12.1.3.5. Instance information query

12.1.3.5.1. DescribeReplicaSetRole

You can call this operation to view the role and connection information of an ApsaraDB for MongoDB instance.

This operation is applicable only to replica set instances, but not to sharded cluster instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeReplicaSetRole	The operation that you want to perform. Set the value to **DescribeReplicaSetRole**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DB4A0595-FCA9-437F-B2BB-25DBFC009D3E	The ID of the request.
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.
ReplicaSets	Array of ReplicaSet		An array that consists of the information of replica set instance roles.
ReplicaSet			
ConnectionDomain	String	dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the node.
ConnectionPort	String	3717	The port of the node.
ExpiredTime	String	1209582	The remaining period of the classic network endpoint. Unit: seconds.
NetworkType	String	VPC	The network type of the endpoint. Valid values: • **VPC** • **Classic** • **Public**

Parameter	Type	Example	Description
ReplicaSetRole	String	Primary	The role of the node in the replica set instance. • **Primary** • **Secondary**
RoleId	String	651xxxxx	The role ID of the node.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeReplicaSetRole
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeReplicaSetRoleResponse>
   <RequestId>7762D0FF-F34D-4DAF-9D06-6C1C28CC98CD</RequestId>
   <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
   <ReplicaSets>
      <ReplicaSet>
         <NetworkType>Classic</NetworkType>
         <ConnectionPort>3717</ConnectionPort>
         <ReplicaSetRole>Primary</ReplicaSetRole>
         <ConnectionDomain>dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com</ConnectionDomain>
         <ExpiredTime>12xxxxx</ExpiredTime>
         <RoleId>55xxxxx</RoleId>
      </ReplicaSet>
      <ReplicaSet>
         <NetworkType>Classic</NetworkType>
         <ConnectionPort>3717</ConnectionPort>
         <ReplicaSetRole>Secondary</ReplicaSetRole>
         <ConnectionDomain>dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com</ConnectionDomain>
         <ExpiredTime>12xxxxx</ExpiredTime>
         <RoleId>55xxxxx</RoleId>
      </ReplicaSet>
      <ReplicaSet>
         <NetworkType>VPC</NetworkType>
         <ConnectionPort>3717</ConnectionPort>
         <ReplicaSetRole>Primary</ReplicaSetRole>
         <ConnectionDomain>dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com</ConnectionDomain>
         <RoleId>55xxxxx</RoleId>
      </ReplicaSet>
      <ReplicaSet>
         <NetworkType>VPC</NetworkType>
         <ConnectionPort>3717</ConnectionPort>
         <ReplicaSetRole>Secondary</ReplicaSetRole>
         <ConnectionDomain>dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com</ConnectionDomain>
         <RoleId>55xxxxx</RoleId>
      </ReplicaSet>
   </ReplicaSets>
</DescribeReplicaSetRoleResponse>
```

`JSON` format

```
{
 "RequestId": "7762D0FF-F34D-4DAF-9D06-6C1C28CC98CD",
 "DBInstanceId": "dds-bpxxxxxxxx",
 "ReplicaSets": {
  "ReplicaSet": [
   {
    "NetworkType": "Classic",
    "ConnectionPort": "3717",
    "ReplicaSetRole": "Primary",
    "ConnectionDomain": "dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com",
    "ExpiredTime": "12xxxxx",
    "RoleId": "55xxxxx"
   },
   {
    "NetworkType": "Classic",
    "ConnectionPort": "3717",
    "ReplicaSetRole": "Secondary",
    "ConnectionDomain": "dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com",
    "ExpiredTime": "12xxxxx",
    "RoleId": "55xxxxx"
   },
   {
    "NetworkType": "VPC",
    "ConnectionPort": "3717",
    "ReplicaSetRole": "Primary",
    "ConnectionDomain": "dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com",
    "RoleId": "55xxxxx"
   },
   {
    "NetworkType": "VPC",
    "ConnectionPort": "3717",
    "ReplicaSetRole": "Secondary",
    "ConnectionDomain": "dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com",
    "RoleId": "55xxxxx"
   }
  ]
 }
}
```


12.1.3.5.2. DescribeKernelReleaseNotes

You can call this operation to view the release notes of the minor database versions of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeKernelReleaseNotes	The operation that you want to perform. Set the value to **DescribeKernelReleaseNotes**.
KernelVersion	String	No	mongodb_20180522_0.4.8	The minor version of the database. Example: **mongodb_20180522_0.4.8**. • If you specify this parameter, a list of versions later than the version specified is returned. • If you do not specify this parameter, a list of all versions is returned.

Response parameters

Parameter	Type	Example	Description
ReleaseNotes	Array of ReleaseNote		An array that consists of the information of version release notes.
ReleaseNote			
KernelVersion	String	mongodb_20180619_0.4.9	The version of the database.
ReleaseNote	String	Released the balancer switch limit for a sharded set	The release notes.
RequestId	String	F01D4DDA-CB72-4083-B399-AF4642294FE6	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeKernelReleaseNotes
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>F01D4DDA-CB72-4083-B399-AF4642294FE6</RequestId>
<ReleaseNotes>
    <ReleaseNote>
        <KernelVersion>mongodb_20180619_0.4.9</KernelVersion>
        <ReleaseNote>Released the balancer switch limit for a sharded set</ReleaseNote>
    </ReleaseNote>
</ReleaseNotes>
```

`JSON` format

```
{
    "RequestId":"F01D4DDA-CB72-4083-B399-AF4642294FE6",
    "ReleaseNotes":
    {
        "ReleaseNote":[
            {
                "KernelVersion":"mongodb_20180619_0.4.9",
                "ReleaseNote":"Released the balancer limit for a sharded set"
            }
        ]
    }
}
```

12.1.3.5.3. DescribeAvailableEngineVersion

You can call this operation to view the database engine versions that an ApsaraDB for MongoDB instance can be upgraded to.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAvailableEngineVersion	The operation that you want to perform. Set the value to **DescribeAvailableEngineVersion**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	52507B6B-003B-47A3-A0A3-9FE992C7A243	The ID of the request.

Parameter	Type	Example	Description
EngineVersions	List	{"EngineVersion": ["4.0"]}	The databse engine versions that the ApsaraDB for MongoDB instance can be upgraded to. **Note** An empty string is returned if the latest version is being used.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAvailableEngineVersion
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAvailableEngineVersionResponse>
   <EngineVersions>
      <EngineVersion>4.0</EngineVersion>
   </EngineVersions>
   <RequestId>52507B6B-003B-47A3-A0A3-9FE992C7A243</RequestId>
</DescribeAvailableEngineVersionResponse>
```

`JSON` format

```
{
 "EngineVersions": {
  "EngineVersion": [
   "4.0"
  ]
 },
 "RequestId": "52507B6B-003B-47A3-A0A3-9FE992C7A243"
}
```

12.1.3.5.4. DescribeDBInstances

You can call this operation to query the list of ApsaraDB for MongoDB instances.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstances	The operation that you want to perform. Set the value to **DescribeDBInstances**.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30, 50, and 100**. Default value: **30**.
ReplicationFactor	String	No	3	The number of nodes in a replica set instance. Valid values: **3, 5, and 7**.
DBInstanceType	String	No	replicate	The architecture type of the instance. Valid values: • **sharding**: sharded cluster instance • **replicate**: replica set or standalone instance Default value: **replicate**
Engine	String	No	MongoDB	The database engine. Valid value: **MongoDB**.
DBInstanceId	String	No	dds-bpxxxxxxxx	The ID of the instance.
DBInstanceDescription	String	No	Test database	The description of the instance.
ExpireTime	String	No	2019-12-26T16:00Z	The time when the instance expires.
DBInstanceStatus	String	No	ACTIVATION	The status of the instance. For more information, see **Instance states**.
DBInstanceClass	String	No	dds.mongo.mid	The instance type. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.

Parameter	Type	Required	Example	Description
EngineVersion	String	No	4.0	The database engine version of the instance. Valid values: • **3.2** • **3.4** • **4.0** • **4.2**
NetworkType	String	No	VPC	The network type of the instances. Valid values: • **Classic** • **VPC**
VpcId	String	No	vpc-bpxxxxxxxx	The ID of the VPC.
VSwitchId	String	No	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC.
ChargeType	String	No	PostPaid	The billing method of the instance. Valid values: • **PrePaid**: subscription • **PostPaid**: pay-as-you-go
ZoneId	String	No	cn-hangzhou-b	The zone ID of the instance. You can call the DescribeRegions operation to query the zone IDs.
Expired	String	No	true	Specifies whether the instance has expired. Valid values: • **true**: The instance has expired. • **false**: The instance has not expired.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Parameter	Type	Required	Example	Description
Tag.N.Key	String	No	testdatabase	The key of the instance tag. Valid values of N: 1 to 20. The tag key can be up to 64 characters in length. It cannot start with `aliyun`, `acs:`, `http://`, or `https://`. **Note** It cannot be an empty string.
Tag.N.Value	String	No	apitest	The value of the instance tag. Valid values of N: 1 to 20. The tag value can be up to 128 characters in length. It cannot start with `aliyun`, `acs:`, `http://`, or `https://`. **Note** Tag.N.Value can be an empty string.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
TotalCount	Integer	1	The number of the instances in the query results.
PageSize	Integer	30	The number of entries return on each page.
RequestId	String	A10B8ECB-0BA0-4EC6-93A5-C65FDEDA07CB	The ID of the request.
DBInstances	Array of DBInstance		An array that consists of the information of instances.
DBInstance			
ChargeType	String	PostPaid	The billing method of the instance. • **PrePaid**: subscription • **PostPaid**: pay-as-you-go

Parameter	Type	Example	Description
CreationTime	String	2018-09-25T06:33:07Z	The time when the instance was created. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
DBInstanceClass	String	dds.mongo.mid	The instance type
DBInstanceDescription	String	Test database	The description of the instance.
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.
DBInstanceStatus	String	Running	The status of the instance.
DBInstanceStorage	Integer	20	The storage capacity of the instance.
DBInstanceType	String	sharding	The architecture type of the instance. • **sharding**: sharded cluster instance • **replicate**: replica set instance
DestroyTime	String	2019-03-05T11:26:02Z	The time when the instance was released. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC. **Note** • Subscription instances are released seven days after expiration. After an instance is released, its data is deleted and cannot be restored. • Pay-as-you-go instances will be locked when the payment is overdue for more than 24 hours. The instance will be released when it is overdue for more than seven days. The data of released instances will be deleted and cannot be recovered.
Engine	String	MongoDB	The database engine of the instance

Parameter	Type	Example	Description
EngineVersion	String	4.0	The version of the database engine.
ExpireTime	String	2019-11-25T16:00Z	The time when the instance expires. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
KindCode	String	1	The kind code of the instance. Valid values: • **0**: physical machine • **1**: Elastic Compute Service (ECS) • **2**: Docker cluster • **18**: Kubernetes cluster
LastDowngradeTime	String	20190308	The last time when the instance was downgraded.
LockMode	String	Unlock	Indicates whether the instance is locked. • **Unlock**: The instance is not locked. • **ManualLock**: The instance has been manually locked. • **LockByExpiration**: The instance has been locked upon expiration. • **LockByRestoration:** The instance has been locked for a rollback. • **LockByDiskQuota:** The instance has been automatically locked because its storage space is exhausted. • **Released:** The instance has been released. You cannot unlock a released instance. After an instance is released, you can only use a backup to restore the data of the instance to a new instance. This process requires a long time.
MongosList	Array of MongosAttribute		An array that consists of the information of mongos nodes. **Note** This parameter is returned if the instance is a sharded cluster instance.
MongosAttribute			

Parameter	Type	Example	Description
NodeClass	String	dds.mongos.mid	The specifications of the mongos node.
NodeDescription	String	Test mongos	The description of the mongos node.
NodeId	String	s-bpxxxxxxxx	The ID of the mongos node.
NetworkType	String	VPC	The network type of the instance. • **Classic** • **VPC**
RegionId	String	cn-hangzhou	The region ID of the instance.
ReplicationFactor	String	3	The number of the nodes in the instance. **Note** This parameter is returned if the instance is a replica set instance.
ResourceGroupId	String	rg-axxxxxxxx	The ID of the resource group.
ShardList	Array of ShardAttribute		An array that consists of the information of shard nodes. **Note** This parameter is returned if the instance is a sharded cluster instance.
ShardAttribute			
NodeClass	String	dds.shard.mid	The specifications of the shard node.
NodeDescription	String	Test shard	The description of the shard node.
NodeId	String	d-bpxxxxxxxx	The ID of the shard node.
NodeStorage	Integer	20	The storage capacity of the shard node. Unit: GB.

Parameter	Type	Example	Description
Tags	Array of Tag		An array that consists of the information of instance tags.
Tag			
Key	String	test	The key of the instance tag.
Value	String	api	The value of the instance tag.
VpcAuthMode	String	close	Indicates whether password-free access within the VPC is enabled. Valid values: • **Open**: Password-free access is enabled. • **Close**: Password-free access is disabled.
ZoneId	String	cn-hangzhou-b	The zone ID of the instance.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstances
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>1</TotalCount>
<PageSize>30</PageSize>
<RequestId>A10B8ECB-0BA0-4EC6-93A5-C65FDEDA07CB</RequestId>
<PageNumber>1</PageNumber>
<DBInstances>
    <EngineVersion>4.0</EngineVersion>
    <ReplicationFactor>3</ReplicationFactor>
    <DBInstanceStatus>Running</DBInstanceStatus>
    <ZoneId>cn-hangzhou-b</ZoneId>
    <ResourceGroupId>rg-axxxxxxxx</ResourceGroupId>
    <DBInstanceClass>dds.mongo.mid</DBInstanceClass>
    <DestroyTime>2019-03-05T11:26:02Z</DestroyTime>
    <DBInstanceType>sharding</DBInstanceType>
    <LockMode>Unlock</LockMode>
    <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
    <VpcAuthMode>close</VpcAuthMode>
    <NetworkType>VPC</NetworkType>
    <ChargeType>PostPaid</ChargeType>
    <LastDowngradeTime>20190308</LastDowngradeTime>
    <DBInstanceStorage>20</DBInstanceStorage>
    <CreationTime>2018-09-25T06:33:07Z</CreationTime>
    <RegionId>cn-hangzhou</RegionId>
    <ExpireTime>2019-11-25T16:00Z</ExpireTime>
    <KindCode>1</KindCode>
    <Engine>MongoDB</Engine>
    <DBInstanceDescription>Test database</DBInstanceDescription>
</DBInstances>
<DBInstances>
    <ShardList>
        <NodeStorage>20</NodeStorage>
        <NodeId>d-bpxxxxxxxx</NodeId>
        <NodeClass>dds.shard.mid</NodeClass>
        <NodeDescription>Test shard</NodeDescription>
    </ShardList>
    <MongosList>
        <NodeId>s-bpxxxxxxxx</NodeId>
        <NodeClass>dds.mongos.mid</NodeClass>
        <NodeDescription>Test mongos</NodeDescription>
    </MongosList>
    <Tags>
        <Value>api</Value>
        <Key>test</Key>
    </Tags>
</DBInstances>
```

`JSON` format

```
{
 "TotalCount": "1",
 "PageSize": "30",
 "RequestId": "A10B8ECB-0BA0-4EC6-93A5-C65FDEDA07CB",
 "PageNumber": "1",
 "DBInstances": [{
  "EngineVersion": "4.0",
  "ReplicationFactor": "3",
  "DBInstanceStatus": "Running",
  "ZoneId": "cn-hangzhou-b",
  "ResourceGroupId": "rg-axxxxxxxx",
  "DBInstanceClass": "dds.mongo.mid",
  "DestroyTime": "2019-03-05T11:26:02Z",
  "DBInstanceType": "sharding",
  "LockMode": "Unlock",
  "DBInstanceId": "dds-bpxxxxxxxx",
  "VpcAuthMode": "close",
  "NetworkType": "VPC",
  "ChargeType": "PostPaid",
  "LastDowngradeTime": "20190308",
  "DBInstanceStorage": "20",
  "CreationTime": "2018-09-25T06:33:07Z",
  "RegionId": "cn-hangzhou",
  "ExpireTime": "2019-11-25T16:00Z",
  "KindCode": "1",
  "Engine": "MongoDB",
  "DBInstanceDescription": "Test database",
 }, {
  "ShardList": [{
   "NodeStorage": "20",
   "NodeId": "d-bpxxxxxxxx",
   "NodeClass": "dds.shard.mid",
   "NodeDescription": "Test shard"
  }],
  "MongosList": [{
   "NodeId": "s-bpxxxxxxxx",
   "NodeClass": "dds.mongos.mid",
   "NodeDescription": "Test mongos"
  }],
  "Tags": [{
   "Value": "api",
   "Key": "test"
  }]
 }]
}
```


12.1.3.5.5. DescribeDBInstanceAttribute

You can call this operation to view the details of a MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceAttribute	The operation that you want to perform. Set the value to **DescribeDBInstanceAttribute**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
Engine	String	No	MongoDB	The database engine. Set the value to **MongoDB**.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C373EED9-5125-4DD9-89DB-FB1ECD2C2B4F	The ID of the request.
DBInstances	Array of DBInstance		An array that consists of the information of the instance.
DBInstance			
ChargeType	String	PostPaid	The billing method of the instance. • **PrePaid**: subscription • **PostPaid**: pay-as-you-go
ConfigserverList	Array of ConfigserverAttribute		An array that consists of the information of Configserve nodes. **Note** This parameter is returned if the instance type is sharded cluster.
ConfigserverAttribute			
ConnectString	String	mongodb://root:****@dds-bpxxxxxxxxxxxxxx-cs1730-pub.mongodb.rds.aliyuncs.com:3717	The connection string URI of the Configserver node.

Parameter	Type	Example	Description
MaxConnections	Integer	0	The maximum number of connections of the Configserver node.
MaxIOPS	Integer	1000	The maximum input/output operations per second (IOPS) of the Configserver node.
NodeClass	String	dds.cs.mid	The specifications of the Configserver node.
NodeDescription	String	testConfigserver	The name of the Configserver node.
NodeId	String	dds-bpxxxxxxxxxxxxx-cs	The ID of the Configserver node.
NodeStorage	Integer	20	The storage capacity of the Configserver node.
Port	Integer	3717	The port of the Configserver node.
CreationTime	String	2018-11-21T05:10:00Z	The time when the instance was created. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
CurrentKernelVersion	String	mongodb_20180914_1.1.5	The minor version of the current database of the instance.
DBInstanceClass	String	dds.mongo.mid	The instance type.
DBInstanceDescription	String	Test	The name of the instance.
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.
DBInstanceReleaseProtection	Boolean	true	Indicates whether release protection is enabled for the instance. Valid values: • **true**: Release protection is enabled. • **false**: Release protection is disabled.
DBInstanceStatus	String	Running	The status of the instance. For more information, see **Instance types** in *ApsaraDB for MongoDB Product Introduction*.

Parameter	Type	Example	Description
DBInstanceStorage	Integer	10	The storage capacity of the instance.
DBInstanceType	String	replicate	The architecture type of the instance. • **replicate**: replica set instance • **sharding**: sharded cluster instance
Engine	String	MongoDB	The database engine of the instance.
EngineVersion	String	3.4	The version of the database engine.
ExpireTime	String	2019-04-08T16:00Z	The time when the subscription instance expires. The time is in the *yyyy-MM-ddTHH:mmZ* format. The time is displayed in UTC. **Note** This parameter is returned if the instance billing method is subscription.
KindCode	String	1	The kind code of the instance. Valid values: • **0**: physical machine • **1**: Elastic Compute Service (ECS) • **2**: Docker cluster • **18**: Kubernetes cluster
LastDowngradeTime	String	2019-03-08	The last time when the instance was downgraded.

Parameter	Type	Example	Description
LockMode	String	Unlock	Indicates whether the instance is locked. Valid values: • **Unlock**: The instance is not locked. • **ManualLock**: The instance has been manually locked. • **LockByExpiration**: The instance has been locked upon expiration. • **LockByRestoration:** The instance has been locked for a rollback. • **LockByDiskQuota:** The instance has been automatically locked because its storage space is exhausted. • **Released:** The instance has been released. You cannot unlock a released instance. After an instance is released, you can only use a backup to restore the data of the instance to a new instance. This process requires a long time.
MaintainEndTime	String	03:00Z	The end time of the maintenance window. The time is in the *HH:mm*Z format. The time is displayed in UTC.
MaintainStartTime	String	02:00Z	The start time of the maintenance window. The time is in the *HH:mm*Z format. The time is displayed in UTC.
MaxConnections	Integer	500	The maximum number of connections of the instance.
MaxIOPS	Integer	1000	The maximum IOPS of the instance.
MongosList	Array of MongosAttribute		An array that consists of the information of mongos nodes. **Note** This parameter is returned if the instance type is sharded cluster.
MongosAttribute			
ConnectSting	String	s-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the mongos node.

Parameter	Type	Example	Description
MaxConnections	Integer	1000	The maximum number of connections of the mongos node.
MaxIOPS	Integer	0	The maximum IOPS of the mongos node.
NodeClass	String	dds.mongos.mid	The specifications of the mongos node.
NodeDescription	String	mongos1	The name of the mongos node.
NodeId	String	s-bpxxxxxxxx	The ID of the mongos node.
Port	Integer	3717	The port of the mongos node.
VPCId	String	vpc-bp1xxxxxxxxxxxxxxxxxx	The VPC ID of the mongos node.
VSwitchId	String	vsw-bp1xxxxxxxxxxxxxxxxxx	The vSwitch ID of the mongos node.
VpcCloudInstanceId	String	s-bp1xxxxxxxxxxxx	The ID of the VPC instance for the mongos ID.
NetworkType	String	VPC	The network type of the instance. Valid values: • **Classic** • **VPC**
ProtocolType	String	mongodb	The access protocol type of the instance. Valid values: • **mongodb**: the MongoDB protocol • **dynamodb**: the DynamoDB protocol
ReadonlyReplicas	String	0	The number of read-only nodes in the instance.
RegionId	String	cn-hangzhou	The region ID of the instance.

Parameter	Type	Example	Description
ReplacateId	String	bls-mxxxxxxxx	The BLS channel ID of the instance.
ReplicaSetName	String	mgset-10xxxxxxxx	The name of the replica set instance. **Note** This parameter is returned if the instance type is replica set.
ReplicaSets	Array of ReplicaSet		The information list of the replica set. **Note** This parameter is returned if the instance type is replica set.
ReplicaSet			
ConnectionDomain	String	dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the node.
ConnectionPort	String	ConnectionPort	The port of the node.
NetworkType	String	VPC	The network type of the node. Valid values: • **Classic** • **VPC**
ReplicaSetRole	String	Primary	The role of the node. • **Primary** • **Secondary**
VPCCloudInstanceId	String	vpc-xxxxxxxx	The ID of the VPC instance for the node.
VPCId	String	vpc-bpxxxxxxxx	The VPC ID of the node.
VSwitchId	String	vsw-bpxxxxxxxx	The vSwitch ID of the node.
ReplicationFactor	String	3	The number of nodes in the instance. **Note** This parameter is returned if the instance type is replica set.

Parameter	Type	Example	Description
ResourceGroupId	String	rg-axxxxxxxx	The ID of the resource group to which the instance belongs.
ShardList	Array of ShardAttribute		An array that consists of the information of shard nodes. **Note** This parameter is returned if the instance type is sharded cluster.
ShardAttribute			
ConnectString	String	d-bpxxxxxxxxxxxxxxxxx.mongodb.rds.aliyuncs.com	The endpoint of the shard node.
MaxConnections	Integer	8000	The maximum number of connections of the shard node.
MaxIOPS	Integer	8000	The maximum IOPS of the shard node.
NodeClass	String	dds.shard.mid	The specifications of the shard node.
NodeDescription	String	testshard	The name of the shard node.
NodeId	String	d-bpxxxxxxxx	The ID of the shard node.
NodeStorage	Integer	10	The storage capacity of the shard node.
Port	Integer	3717	The port of the shard node.
StorageEngine	String	WiredTiger	The storage engine of the instance.
Tags	Array of Tag		An array that consists of the information of instance tags.
Tag			
Key	String	test	The key of the instance tag.

Parameter	Type	Example	Description
Value	String	api	The value of the instance tag.
VPCCloudInstanceIds	String	s-bp1xxxxxxxxxxxx	The ID of the VPC instance for the instance.
VPCId	String	vpc-bpxxxxxxxx	The ID of the VPC.
VSwitchId	String	vsw-bpxxxxxxxx	The ID of the vSwitch in the specified VPC.
VpcAuthMode	String	Open	Indicates whether password-free access within the VPC is enabled. Valid values: • **Open**: Password-free access is enabled. • **Close**: Password-free access is disabled. • **NotSupport**: Password-free access is not supported.
ZoneId	String	cn-hangzhou-b	The zone ID of the instance.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstanceAttribute
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>C373EED9-5125-4DD9-89DB-FB1ECD2C2B4F</RequestId>
<DBInstances>
    <VPCCloudInstanceIds>s-bp1xxxxxxxxxxxx</VPCCloudInstanceIds>
    <ResourceGroupId>rg-axxxxxxxx</ResourceGroupId>
    <DBInstanceType>replicate</DBInstanceType>
    <ReplicaSetName>mgset-10xxxxxxx</ReplicaSetName>
    <StorageEngine>WiredTiger</StorageEngine>
    <MaintainEndTime>03:00Z</MaintainEndTime>
    <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
    <NetworkType>VPC</NetworkType>
    <LastDowngradeTime>2019-03-08</LastDowngradeTime>
    <DBInstanceStorage>10</DBInstanceStorage>
    <MaintainStartTime>02:00Z</MaintainStartTime>
    <Engine>MongoDB</Engine>
    <DBInstanceDescription>Test</DBInstanceDescription>
    <ReplacateId>bls-mxxxxxxxx</ReplacateId>
    <DBInstanceReleaseProtection>true</DBInstanceReleaseProtection>
```

```
    <DBInstanceReleaseProtection>true</DBInstanceReleaseProtection>
    <EngineVersion>3.4</EngineVersion>
    <MaxConnections>500</MaxConnections>
    <ReadonlyReplicas>0</ReadonlyReplicas>
    <ReplicationFactor>3</ReplicationFactor>
    <DBInstanceStatus>Running</DBInstanceStatus>
    <ZoneId>cn-hangzhou-b</ZoneId>
    <VPCId>vpc-bpxxxxxxxx</VPCId>
    <DBInstanceClass>dds.mongo.mid</DBInstanceClass>
    <VSwitchId>vsw-bpxxxxxxxx</VSwitchId>
    <LockMode>Unlock</LockMode>
    <MaxIOPS>1000</MaxIOPS>
    <VpcAuthMode>Open</VpcAuthMode>
    <ProtocolType>mongodb</ProtocolType>
    <CurrentKernelVersion>mongodb_20180914_1.1.5</CurrentKernelVersion>
    <ChargeType>PostPaid</ChargeType>
    <CreationTime>2018-11-21T05:10:00Z</CreationTime>
    <RegionId>cn-hangzhou</RegionId>
    <ExpireTime>2019-04-08T16:00Z</ExpireTime>
    <KindCode>1</KindCode>
</DBInstances>
<DBInstances>
    <ShardList>
        <NodeClass>dds.shard.mid</NodeClass>
        <NodeDescription>testshard</NodeDescription>
        <MaxConnections>8000</MaxConnections>
        <Port>3717</Port>
        <NodeStorage>10</NodeStorage>
        <NodeId>d-bpxxxxxxxx</NodeId>
        <ConnectString>d-bpxxxxxxxxxxxxxxxxxx.mongodb.rds.example.com</ConnectString>
        <MaxIOPS>8000</MaxIOPS>
    </ShardList>
    <ConfigserverList>
        <NodeClass>dds.cs.mid</NodeClass>
        <NodeDescription>testConfigserver</NodeDescription>
        <MaxConnections>0</MaxConnections>
        <Port>3717</Port>
        <NodeStorage>20</NodeStorage>
        <NodeId>dds-bpxxxxxxxxxxxxxx-cs</NodeId>
        <ConnectString>mongodb://root:****@dds-bpxxxxxxxxxxxxxx-cs1730-pub.mongodb.rds.exam
ple.com:3717</ConnectString>
        <MaxIOPS>1000</MaxIOPS>
    </ConfigserverList>
    <MongosList>
        <ConnectSting>s-bpxxxxxxxx.mongodb.rds.example.com</ConnectSting>
        <NodeClass>dds.mongos.mid</NodeClass>
        <NodeDescription>mongos1</NodeDescription>
        <MaxConnections>1000</MaxConnections>
        <VPCId>vpc-bp1xxxxxxxxxxxxxxxxxx</VPCId>
        <VSwitchId>vsw-bp1xxxxxxxxxxxxxxxxx</VSwitchId>
        <Port>3717</Port>
        <NodeId>s-bpxxxxxxxx</NodeId>
        <VpcCloudInstanceId>s-bp1xxxxxxxxxxxx</VpcCloudInstanceId>
        <MaxIOPS>0</MaxIOPS>
    </MongosList>
```

```
    <Tags>
        <Value>api</Value>
        <Key>test</Key>
    </Tags>
    <ReplicaSets>
        <ConnectionDomain>dds-bpxxxxxxxx.mongodb.rds.example.com</ConnectionDomain>
        <ReplicaSetRole>Primary</ReplicaSetRole>
        <VPCCloudInstanceId>vpc-xxxxxxxx</VPCCloudInstanceId>
        <VPCId>vpc-bpxxxxxxxx</VPCId>
        <ConnectionPort>ConnectionPort</ConnectionPort>
        <NetworkType>VPC</NetworkType>
        <VSwitchId>vsw-bpxxxxxxxx</VSwitchId>
    </ReplicaSets>
</DBInstances>
```

`JSON` format

```
{
    "RequestId":"C373EED9-5125-4DD9-89DB-FB1ECD2C2B4F",
    "DBInstances":[
        {
            "VPCCloudInstanceIds":"s-bp1xxxxxxxxxxxx",
            "ResourceGroupId":"rg-axxxxxxxx",
            "DBInstanceType":"replicate",
            "ReplicaSetName":"mgset-10xxxxxxxx",
            "StorageEngine":"WiredTiger",
            "MaintainEndTime":"03:00Z",
            "DBInstanceId":"dds-bpxxxxxxxx",
            "NetworkType":"VPC",
            "LastDowngradeTime":"2019-03-08",
            "DBInstanceStorage":"10",
            "MaintainStartTime":"02:00Z",
            "Engine":"MongoDB",
            "DBInstanceDescription":"Test",
            "ReplacateId":"bls-mxxxxxxxx",
            "DBInstanceReleaseProtection":"true",
            "EngineVersion":"3.4",
            "MaxConnections":"500",
            "ReadonlyReplicas":"0",
            "ReplicationFactor":"3",
            "DBInstanceStatus":"Running",
            "ZoneId":"cn-hangzhou-b",
            "VPCId":"vpc-bpxxxxxxxx",
            "DBInstanceClass":"dds.mongo.mid",
            "VSwitchId":"vsw-bpxxxxxxxx",
            "LockMode":"Unlock",
            "MaxIOPS":"1000",
            "VpcAuthMode":"Open",
            "ProtocolType":"mongodb",
            "CurrentKernelVersion":"mongodb_20180914_1.1.5",
            "ChargeType":"PostPaid",
            "CreationTime":"2018-11-21T05:10:00Z",
            "RegionId":"cn-hangzhou",
```

```
            "ExpireTime":"2019-04-08T16:00Z",
            "KindCode":"1"
        },
        {
            "ShardList":[
                {
                    "NodeClass":"dds.shard.mid",
                    "NodeDescription":"testshard",
                    "MaxConnections":"8000",
                    "Port":"3717",
                    "NodeStorage":"10",
                    "NodeId":"d-bpxxxxxxxx",
                    "ConnectString":"d-bpxxxxxxxxxxxxxxxxxx.mongodb.rds.example.com",
                    "MaxIOPS":"8000"
                }
            ],
            "ConfigserverList":[
                {
                    "NodeClass":"dds.cs.mid",
                    "NodeDescription":"testConfigserver",
                    "MaxConnections":"0",
                    "Port":"3717",
                    "NodeStorage":"20",
                    "NodeId":"dds-bpxxxxxxxxxxxxxx-cs",
                    "ConnectString":"mongodb://root:****@dds-bpxxxxxxxxxxxxxx-cs1730-pub.mo
ngodb.rds.example.com:3717",
                    "MaxIOPS":"1000"
                }
            ],
            "MongosList":[
                {
                    "ConnectSting":"s-bpxxxxxxxx.mongodb.rds.example.com",
                    "NodeClass":"dds.mongos.mid",
                    "NodeDescription":"mongos1",
                    "MaxConnections":"1000",
                    "VPCId":"vpc-bp1xxxxxxxxxxxxxxxxx",
                    "VSwitchId":"vsw-bp1xxxxxxxxxxxxxxxxx",
                    "Port":"3717",
                    "NodeId":"s-bpxxxxxxxx",
                    "VpcCloudInstanceId":"s-bp1xxxxxxxxxxxx",
                    "MaxIOPS":"0"
                }
            ],
            "Tags":[
                {
                    "Value":"api",
                    "Key":"test"
                }
            ],
            "ReplicaSets":[
                {
                    "ConnectionDomain":"dds-bpxxxxxxxx.mongodb.rds.example.com",
                    "ReplicaSetRole":"Primary",
                    "VPCCloudInstanceId":"vpc-xxxxxxxx",
                    "VPCId":"vpc-bpxxxxxxxx"
```

```
                    "VpcId":"vpc-bpxxxxxxxx",
                    "ConnectionPort":"ConnectionPort",
                    "NetworkType":"VPC",
                    "VSwitchId":"vsw-bpxxxxxxxx"
                }
            ]
        }
    ]
}
```

12.1.3.5.6. DescribeRoleZoneInfo

You can call this operation to view the roles and zones of nodes in an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRoleZoneInfo	The operation that you want to perform. Set the value to **DescribeRoleZoneInfo**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	728B9A96-E262-4AE5-915E-3A51CCE2FDA9	The ID of the request.
ZoneInfos	Array of ZoneInfo		An array that consists of information of nodes in the zone.
ZoneInfo			
InsName	String	dds-bpxxxxxxxx	The ID of the node.

Parameter	Type	Example	Description
NodeType	String	normal	The type of the node. Valid values: • **normal** • **configServer** • **shard** • **mongos** **Note** Valid value for replica set instances: **normal**. Valid values for sharded cluster instances: **configServer**, **shard**, and **mongos**.
RoleId	String	83xxxxx	The ID of the role.
RoleType	String	Primary	The role of the node. Valid values: • **Primary** • **Secondary** • **Hidden**
ZoneId	String	cn-hangzhou-e	The zone ID.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeRoleZoneInfo
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRoleZoneInfoResponse>
   <ZoneInfos>
      <ZoneInfo>
         <RoleType>Primary</RoleType>
         <NodeType>normal</NodeType>
         <InsName>dds-bpxxxxxxxx</InsName>
         <ZoneId>cn-hangzhou-e</ZoneId>
         <RoleId>83xxxxx</RoleId>
      </ZoneInfo>
      <ZoneInfo>
         <RoleType>Secondary</RoleType>
         <NodeType>normal</NodeType>
         <InsName>dds-bpxxxxxxxx</InsName>
         <ZoneId>cn-hangzhou-f</ZoneId>
         <RoleId>83xxxxx</RoleId>
      </ZoneInfo>
      <ZoneInfo>
         <RoleType>Hidden</RoleType>
         <NodeType>normal</NodeType>
         <InsName>dds-bpxxxxxxxx</InsName>
         <ZoneId>cn-hangzhou-b</ZoneId>
         <RoleId>83xxxxx</RoleId>
      </ZoneInfo>
   </ZoneInfos>
   <RequestId>728B9A96-E262-4AE5-915E-3A51CCE2FDA9</RequestId>
</DescribeRoleZoneInfoResponse>
```

`JSON` format

```
{
 "ZoneInfos": {
  "ZoneInfo": [
   {
    "RoleType": "Primary",
    "NodeType": "normal",
    "InsName": "dds-bpxxxxxxxx",
    "ZoneId": "cn-hangzhou-e",
    "RoleId": "83xxxxx"
   },
   {
    "RoleType": "Secondary",
    "NodeType": "normal",
    "InsName": "dds-bpxxxxxxxx",
    "ZoneId": "cn-hangzhou-f",
    "RoleId": "83xxxxx"
   },
   {
    "RoleType": "Hidden",
    "NodeType": "normal",
    "InsName": "dds-bpxxxxxxxx",
    "ZoneId": "cn-hangzhou-b",
    "RoleId": "83xxxxx"
   }
  ]
 },
 "RequestId": "728B9A96-E262-4AE5-915E-3A51CCE2FDA9"
}
```


12.1.3.6. Instance management

12.1.3.6.1. RestartDBInstance

You can call this operation to restart an ApsaraDB for MongoDB instance.

This operation can also be used to restart a shard or mongos node in a replica set instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RestartDBInstance	The operation that you want to perform. Set the value to **RestartDBInstance**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
NodeId	String	No	d-bpxxxxxxxx	The ID of the shard or mongos node in the sharded cluster instance. **Note** The sharded cluster instance will be restarted if this parameter is not specified.

Response parameters

Parameter	Type	Example	Description
RequestId	String	149C517D-B586-47BE-A107-8673E0ED77C6	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=RestartDBInstance
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RestartDBInstanceResponse>
   <RequestId>149C517D-B586-47BE-A107-8673E0ED77C6</RequestId>
</RestartDBInstanceResponse>
```

`JSON` format

```
{
 "RequestId": "149C517D-B586-47BE-A107-8673E0ED77C6"
}
```

12.1.3.6.2. ModifyDBInstanceMaintainTime

You can call this operation to modify the maintenance window of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceMaintainTime	The operation that you want to perform. Set the value to **ModifyDBInstanceMaintainTime**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
MaintainEndTime	String	Yes	02:00Z	The end time of the maintenance window. Specify the time in the *HH:mmZ* format. The time must be in UTC. **Note** The difference between the start time and end time must be one hour. For example, if **MaintainStartTime** is **01:00Z**, **MaintainEndTime** must be **02:00Z**.
MaintainStartTime	String	Yes	01:00Z	The start time of the maintenance window. Specify the time in the *HH:mmZ* format. The time must be in UTC.

Response parameters

Parameter	Type	Example	Description
RequestId	String	A9310426-C763-42A2-A3AD-70A8DA204531	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceMaintainTime
&MaintainStartTime=01:00Z
&MaintainEndTime=02:00Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceMaintainTimeResponse>
   <RequestId>A9310426-C763-42A2-A3AD-70A8DA204531</RequestId>
</ModifyDBInstanceMaintainTimeResponse>
```

`JSON` format

```
{
 "RequestId": "A9310426-C763-42A2-A3AD-70A8DA204531"
}
```

12.1.3.6.3. ModifyDBInstanceDescription

You can call this operation to change the name of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceDescription	The operation that you want to perform. Set the value to **ModifyDBInstanceDescription**.
DBInstanceDescription	String	Yes	testdata	The name of the instance. **Note** • The name cannot start with http:// or https://. • The name must start with a letter. • It can contain letters, underscores (_), hyphens (-), and digits. It must be 2 to 256 characters in length.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you want to modify the name of a shard or mongos node in a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the shard or mongos node in the sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	06F8F642-4009-4FFC-80C4-9D67DBF7B74E	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceDescription
&DBInstanceDescription=testdata
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceDescriptionResponse>
   <RequestId>06F8F642-4009-4FFC-80C4-9D67DBF7B74E</RequestId>
</ModifyDBInstanceDescriptionResponse>
```

`JSON` format

```
{
 "RequestId": "06F8F642-4009-4FFC-80C4-9D67DBF7B74E"
}
```

12.1.3.6.4. SwitchDBInstanceHA

You can call this operation to switch between the primary and secondary nodes in an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

> **Note** On replica set instances, the switch is performed between primary and secondary instances. On sharded cluster instances, the switch is performed between primary and secondary shard nodes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SwitchDBInstanceHA	The operation that you want to perform. Set the value to **SwitchDBInstanceHA**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
NodeId	String	No	d-bpxxxxxxxx	The ID of the shard node in the sharded cluster instance. **Note** If you set the **DBInstanceId** parameter to the ID of a sharded cluster instance, you must specify this parameter.

Parameter	Type	Required	Example	Description
RoleIds	String	No	972xxxx,972xxxx	The IDs of the roles that you want to switch. You can call the **DescribeRoleZoneInfo** operation to view the IDs and information of roles of nodes. **Note** • Separate role IDs with commas (,). If this parameter is not specified, the primary and secondary nodes are switched. • If you set the **DBInstanceId** parameter to the ID of a sharded cluster instance, the roles to be switched must belong to one shard node.
SwitchMode	Integer	No	0	The time when roles of the primary and secondary nodes are switched. Valid values: • **0**: The roles are switched immediately. • **1**: The roles are switched during the maintenance period.

Response parameters

Parameter	Type	Example	Description
RequestId	String	26BD4E5F-BDB4-47BA-B232-413AA78CFA8F	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=SwitchDBInstanceHA
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SwitchDBInstanceHAResponse>
   <RequestId>26BD4E5F-BDB4-47BA-B232-413AA78CFA8F</RequestId>
</SwitchDBInstanceHAResponse>
```

`JSON` format

```
{
 "RequestId": "26BD4E5F-BDB4-47BA-B232-413AA78CFA8F"
}
```

12.1.3.6.5. UpgradeDBInstanceEngineVersion

You can call this operation to upgrade the database version of an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

> **Note**
>
> - The available database versions are subject to the storage engine used by the instance. You can call the **DescribeAvailableEngineVersion** operation to view the available database versions.
> - The database version cannot be downgraded after it is upgraded.
> - The instance is automatically restarted for two to three times during the upgrade process. Make sure that you upgrade the instance during off-peak hours.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpgradeDBInstanceEngineVersion	The operation that you want to perform. Set the value to **UpgradeDBInstanceEngineVersion**.

Parameter	Type	Required	Example	Description
EngineVersion	String	Yes	4.2	The new database engine version of the instance. Valid values: **3.4**, **4.0**, and **4.2**. **Note** The new database engine version must be later than the current version.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C4907B00-A208-4E0C-A636-AA85140E406C	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=UpgradeDBInstanceEngineVersion
&EngineVersion=4.0
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpgradeDBInstanceEngineVersionResponse>
   <RequestId>C4907B00-A208-4E0C-A636-AA85140E406C</RequestId>
</UpgradeDBInstanceEngineVersionResponse>
```

`JSON` format

```
{
 "RequestId": "C4907B00-A208-4E0C-A636-AA85140E406C"
}
```

12.1.3.6.6. UpgradeDBInstanceKernelVersion

You can call this operation to upgrade the minor database version of an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

> **Note** The instance will be restarted once during the upgrade. Perform this operation during off-peak hours.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpgradeDBInstanceKernelVersion	The operation that you want to perform. Set the value to **UpgradeDBInstanceKernelVersion**.
DBInstanceId	String	No	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	27B9A130-7C4B-40D9-84E8-2FC081097AAC	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=UpgradeDBInstanceKernelVersion
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpgradeDBInstanceKernelVersionResponse>
   <RequestId>27B9A130-7C4B-40D9-84E8-2FC081097AAC</RequestId>
</UpgradeDBInstanceKernelVersionResponse>
```

`JSON` format

```
{
 "RequestId": "27B9A130-7C4B-40D9-84E8-2FC081097AAC"
}
```

12.1.3.6.7. ModifyDBInstanceNetExpireTime

You can call this operation to extend the retention period of the classic network of an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- The instance must be running.
- The network of the instance is in hybrid access mode.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceNetExpireTime	The operation that you want to perform. Set the value to **ModifyDBInstanceNetExpireTime**.
ClassicExpendExpiredDays	Integer	Yes	30	The retention period of the original classic network address. Valid values: **14**, **30**, **60**, and **120**. Unit: day.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
ConnectionString	String	No	dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com	The connection address of the instance

Response parameters

Parameter	Type	Example	Description
RequestId	String	459E7D5C-38DA-4E14-9C82-5B5AF693DBAB	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceNetExpireTime
&ClassicExpendExpiredDays=30
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceNetExpireTimeResponse>
   <RequestId>459E7D5C-38DA-4E14-9C82-5B5AF693DBAB</RequestId>
</ModifyDBInstanceNetExpireTimeResponse>
```

`JSON` format

```
{
 "RequestId": "459E7D5C-38DA-4E14-9C82-5B5AF693DBAB"
}
```

12.1.3.7. Account management

12.1.3.7.1. DescribeAccounts

You can call this operation to view the information of the database account of an ApsaraDB for MongoDB instance.

> **Note** This operation can display only the information of the root account.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAccounts	The operation that you want to perform. Set the value to **DescribeAccounts**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
AccountName	String	No	root	The name of the account. Set the value to **root**.

Response parameters

Parameter	Type	Example	Description
Accounts	Array of Account		An array that consists of the information of accounts.
Account			
AccountDescription	String	Administrator	The description of the account.
AccountName	String	root	The name of the account.

Parameter	Type	Example	Description
AccountStatus	String	Available	The status of the account. • Unavailable • Available
CharacterType	String	normal	The role of the account. Valid values: • **db**: the shard node • **cs**: the Configserver node • **mongos**: the mongos node • **logic**: the sharded cluster instance • **normal**: the replica set instance
DBInstanceId	String	dds-bpxxxxxxxx	The name of the instance to which the account belongs.
RequestId	String	B562A65B-39AB-4EE8-8635-5A222054FB35	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAccounts
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAccountsResponse>
   <Accounts>
      <Account>
         <AccountStatus>Available</AccountStatus>
         <AccountDescription>Administrator</AccountDescription>
         <DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
         <AccountName>root</AccountName>
      </Account>
   </Accounts>
   <RequestId>A806B0FC-CFCC-48D8-8AEC-34C892806B40</RequestId>
</DescribeAccountsResponse>
```

`JSON` format

```
{
    "Accounts": {
        "Account": [
            {
                "AccountStatus": "Available",
                "AccountDescription": "Administrator",
                "DBInstanceId": "dds-bpxxxxxxxx",
                "AccountName": "root"
            }
        ]
    },
    "RequestId": "A806B0FC-CFCC-48D8-8AEC-34C892806B40"
}
```

12.1.3.7.2. ResetAccountPassword

You can call this operation to reset the password of the root account of an ApsaraDB for MongoDB instance.

Note This operation can reset only the password of the root account of an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ResetAccountPassword	The operation that you want to perform. Set the value to **ResetAccountPassword**.
AccountName	String	Yes	root	The account for which you want to reset the password. Set the value to **root**.
AccountPassword	String	Yes	Ali! 123456	The new password. • The password must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters. Special characters include `! # $ % ^ & * ( ) _ + - = #$%^&*()_+-=` • The password must be 8 to 32 characters in length.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	06CBD06E-ABC9-4121-AB93-3C3820B3E7E6	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ResetAccountPassword
&AccountName=root
&AccountPassword=Ali! 123456
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ResetAccountPasswordResponse>
   <RequestId>06CBD06E-ABC9-4121-AB93-3C3820B3E7E6</RequestId>
</ResetAccountPasswordResponse>
```

`JSON` format

```
{
 "RequestId": "06CBD06E-ABC9-4121-AB93-3C3820B3E7E6"
}
```

12.1.3.7.3. ModifyAccountDescription

You can call this operation to modify the description of the root account of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyAccountDescription	The operation that you want to perform. Set the value to **ModifyAccountDescription**.

Parameter	Type	Required	Example	Description
AccountDescription	String	Yes	superadmin	The description of the account. • It cannot start with http:// or https://. • The description must start with a letter. • It must be 2 to 256 characters in length and can contain letters, digits, underscores (_), and hyphens (-).
AccountName	String	Yes	root	The name of the account for which you want to modify the description.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	59DE9FC2-7B40-45CF-9011-7327A8A771A2	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyAccountDescription
&AccountName=root
&AccountDescription=superadmin
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RestoreDBInstanceResponse>
   <RequestId>59DE9FC2-7B40-45CF-9011-7327A8A771A2</RequestId>
</RestoreDBInstanceResponse>
```

`JSON` format

```
{
 "RequestId": "59DE9FC2-7B40-45CF-9011-7327A8A771A2"
}
```

12.1.3.8. IP whitelists and security groups

12.1.3.8.1. DescribeSecurityGroupConfiguration

You can call this operation to view ECS security groups to which an ApsaraDB for MongoDB instance is added.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSecurityGroupConfiguration	The operation that you want to perform. Set the value to **DescribeSecurityGroupConfiguration**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
Items	Array of RdsEcsSecurityGroupRel		The information list of the ECS security group.
RdsEcsSecurityGroupRel			
NetType	String	vpc	The network type of the ECS security group. Valid values: • **vpc** • **classic**
RegionId	String	cn-hangzhou	The region ID of the ECS security group.
SecurityGroupId	String	sg-bpxxxxxxxx	The ID of the ECS security group.
RequestId	String	3C4A2494-85C4-45C5-93CF-548DB3375193	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeSecurityGroupConfiguration
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Items>
    <RdsEcsSecurityGroupRel>
        <SecurityGroupId>sg-bpxxxxxxxx</SecurityGroupId>
        <RegionId>cn-hangzhou</RegionId>
        <NetType>classic</NetType>
    </RdsEcsSecurityGroupRel>
</Items>
<RequestId>D18F5B88-ACA6-470E-9493-384412EDD902</RequestId>
```

`JSON` format

```
{
 "Items": {
  "RdsEcsSecurityGroupRel": [
   {
    "SecurityGroupId": "sg-bpxxxxxxxx",
    "RegionId": "cn-hangzhou",
    "NetType": "classic"
   }
  ]
 },
 "RequestId": "D18F5B88-ACA6-470E-9493-384412EDD902"
}
```

12.1.3.8.2. ModifySecurityGroupConfiguration

You can call this operation to modify the ECS Security group that is bound to an ApsaraDB for MongoDB instance.

Note For a sharded cluster instance, the bound ECS security group takes effect only for the mongos node.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityGroupConfiguration	The operation that you want to perform. Set the value to**ModifySecurityGroupConfiguration**.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
SecurityGroupId	String	Yes	sg-bpxxxxxxxx	The ID of the ECS security group. **Note** • Only one ECS Security Group can be bound to an instance. • You can view the security groups in the specified region by calling the**DescribeSecurityGroup** operation of ECS.

Response parameters

Parameter	Type	Example	Description
RequestId	String	E062C482-1A4B-469E-938C-96D28CFAE42E	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifySecurityGroupConfiguration
&DBInstanceId=dds-bpxxxxxxxx
&SecurityGroupId=sg-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>E062C482-1A4B-469E-938C-96D28CFAE42E</RequestId>
```

`JSON` format

```
{
    "RequestId": "E062C482-1A4B-469E-938C-96D28CFAE42E"
}
```

12.1.3.8.3. DescribeSecurityIps

You can call this operation to view the IP whitelist of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSecurityIps	The operation that you want to perform. Set the value to **DescribeSecurityIps**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
SecurityIpGroups	Array of SecurityIpGroup		An array that consists of the information of IP whitelists.
SecurityIpGroup			
SecurityIpGroupAttribute	String	hidden	The attribute of the IP whitelist. This parameter is empty by default.
SecurityIpGroupName	String	default	The name of the whitelist.
SecurityIpList	String	47.xxx.xxx.xx,100.xxx.xxx.0/24	The IP addresses in the whitelist.
SecurityIps	String	47.xxx.xxx.xx,100.xxx.xxx.0/24	The IP addresses in the default whitelist.
RequestId	String	FC724D23-2962-479E-ABB1-606C935AE7FD	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeSecurityIps
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSecurityIpsResponse>
   <SecurityIpGroups>
      <SecurityIpGroup>
         <SecurityIpList>114.xxx.xxx.xx</SecurityIpList>
         <SecurityIpGroupAttribute></SecurityIpGroupAttribute>
         <SecurityIpGroupName>allowserver</SecurityIpGroupName>
      </SecurityIpGroup>
      <SecurityIpGroup>
         <SecurityIpList>47.xxx.xxx.xx,100.xxx.xxx.0/24</SecurityIpList>
         <SecurityIpGroupAttribute></SecurityIpGroupAttribute>
         <SecurityIpGroupName>default</SecurityIpGroupName>
      </SecurityIpGroup>
   </SecurityIpGroups>
   <SecurityIps>47.xxx.xxx.xx,100.xxx.xxx.0/24</SecurityIps>
   <RequestId>FC724D23-2962-479E-ABB1-606C935AE7FD</RequestId>
</DescribeSecurityIpsResponse>
```

`JSON` format

```
{
 "SecurityIpGroups": {
  "SecurityIpGroup": [
   {
    "SecurityIpList": "114.xxx.xxx.xx",
    "SecurityIpGroupAttribute": "",
    "SecurityIpGroupName": "allowserver"
   },
   {
    "SecurityIpList": "47.xxx.xxx.xx,100.xxx.xxx.0/24",
    "SecurityIpGroupAttribute": "",
    "SecurityIpGroupName": "default"
   }
  ]
 },
 "SecurityIps": "47.xxx.xxx.xx,100.xxx.xxx.0/24",
 "RequestId": "FC724D23-2962-479E-ABB1-606C935AE7FD"
}
```

12.1.3.8.4. ModifySecurityIps

You can call this operation to modify the IP whitelist of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySecurityIps	The operation that you want to perform. Set the value to **ModifySecurityIps**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
SecurityIps	String	Yes	10.23.12.24/24,10.22.22.22	The IP addresses in an IP whitelist. Separate multiple IP addresses with commas (,). You can add a maximum of 1,000 different IP addresses to a whitelist. You can add IP addresses in one of the following two formats: • IP addresses. Example: 10.23.12.24. • Classless Inter-Domain Routing (CIDR) blocks, such as 10.23.12.24/24. /24 indicates the length of the IP address prefix in the CIDR block. An IP address prefix can contain 1 to 32 bits.
ModifyMode	String	No	Append	The method of modification. Valid values: • **Cover**: overwrites the whitelist. • **Append**: appends data to the whitelist. • **Delete**: deletes the whitelist. The default value is **Cover**.
SecurityIpGroupName	String	No	allowserver	The name of the IP whitelist to be modified. The default value is **default**.
SecurityIpGroupAttribute	String	No	test	The attributes of an IP whitelist. It can contain a maximum of 120 characters in length and can contain uppercase letters, lowercase letters, and digits. This parameter is empty by default.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	61B05CCF-EBAB-4BF3-BA67-D77256A721E2	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifySecurityIps
&SecurityIps=10.23.12.24/24,10.22.22.22
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySecurityIpsResponse>
   <RequestId>61B05CCF-EBAB-4BF3-BA67-D77256A721E2</RequestId>
</ModifySecurityIpsResponse>
```

`JSON` format

```
{
 "RequestId": "61B05CCF-EBAB-4BF3-BA67-D77256A721E2"
}
```

12.1.3.9. Key management

12.1.3.9.1. DescribeDBInstanceTDEInfo

You can call this operation to view whether TDE is enabled for an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- A replica set or sharded cluster instance is used.
- The storage engine of the instance is WiredTiger.
- The database engine version of the instance is 4.0 or 4.2. If the database engine version of your instance is earlier than 4.0, you can call the **UpgradeDBInstanceEngineVersion** operation to upgrade the database engine.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceTDEInfo	The operation that you want to perform. Set the value to **DescribeDBInstanceTDEInfo**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F4DD0E29-361B-42F2-9301-B0048CCCE5D6	The ID of the request.
TDEStatus	String	enabled	The TDE status. Valid values: • **enabled** • **disabled**

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstanceTDEInfo
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TDEStatus>enabled</TDEStatus>
<RequestId>F4DD0E29-361B-42F2-9301-B0048CCCE5D6</RequestId>
```

`JSON` format

```
{
    "TDEStatus":"enabled",
    "RequestId":"F4DD0E29-361B-42F2-9301-B0048CCCE5D6"
}
```

12.1.3.9.2. ModifyDBInstanceTDE

You can call this operation to modify the transparent data encryption (TDE) status of an ApsaraDB for MongoDB instance.

Before data files are written to disks, transparent data encryption (TDE) encrypts the data files. When data files are loaded from disks to the memory, TDE decrypts the data files.

> **Note** After TDE is enabled, it cannot be disabled.

Before you call this operation, make sure that the following requirements are met:

- A replica set or sharded cluster instance is used.
- The storage engine of the instance is WiredTiger.
- The database engine version of the instance is 4.0 or 4.2. If the database engine version is earlier than 4.0, you can call the **UpgradeDBInstanceEngineVersion** operation to upgrade the database engine.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceTDE	The operation that you want to perform. Set the value to **ModifyDBInstanceTDE**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
TDEStatus	String	Yes	enabled	The TDE status. Set the value to **Enabled**. **Note** After TDE is enabled, it cannot be disabled. Proceed with caution.
EncryptorName	String	No	aes-256-cbc	The encryption method. Set the value to **aes-256-cbc**. **Note** This parameter is valid only when you set the **TEDStatus** parameter to **enabled**.
EncryptionKey	String	No	749c1df7-xxxx-xxxx-xxxx-xxxxxxxxxxx	The custom key.

Parameter	Type	Required	Example	Description
RoleARN	String	No	acs:ram::123456789012****:role/adminrole	The ARN of the role. It is in the format of `acs:ram::$accountID:role/$roleName`. **Note** • `$accountID`: indicates the ID of the Alibaba Cloud account that owns the RAM role. To view the account ID, log on to the Alibaba Cloud Management Console, move your pointer over your profile picture in the upper-right corner, and then click Security Settings. • `$roleName`: indicates the name of the RAM role. To view the RAM role name, perform the following steps: Log on to the RAM console. In the left-side navigation pane, click RAM Roles. In the RAM Role Name column on the page that appears, you can view the name of the RAM role.

Response parameters

Parameter	Type	Example	Description
RequestId	String	434D7127-6229-4355-BA50-7A3685A725DF	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceTDE
&DBInstanceId=dds-bpxxxxxxxx
&TDEStatus=enabled
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceTDEResponse>
   <RequestId>434D7127-6229-4355-BA50-7A3685A725DF</RequestId>
</ModifyDBInstanceTDEResponse>
```

`JSON` format

```
{
 "RequestId": "434D7127-6229-4355-BA50-7A3685A725DF"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	IncorrectDBInstanceState	Current DB instance state does not support this operation.	The error message returned because the operation is not supported while the instance is in its current state. Check whether the specified parameters are correct.
403	IncorrectDBInstanceLockMode	Current DB instance lock mode does not support this operation.	The error message returned because the instance is locked.

12.1.3.10. SSL encryption

12.1.3.10.1. ModifyDBInstanceSSL

You can call this operation to modify the SSL settings of an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- The instance is in the running state.
- A replica set instance is used.
- The database engine version of the instance is 3.4, 4.0, or 4.2.

Note Whenever you enable or disable SSL encryption, or update the SSL certificate, the instance will restart. We recommend that you call this operation during off-peak hours.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyDBInstanceSSL	The operation that you want to perform. Set the value to **DescribeDBInstanceSSL**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Parameter	Type	Required	Example	Description
SSLAction	String	Yes	Open	The operation that you perform for the SSL feature. Valid values: • **Open**: enables SSL encryption. • **Close**: disables SSL encryption. • **Update**: updates the SSL certificate.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6D806B11-078F-4154-BF9F-844F56D08964	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyDBInstanceSSL
&DBInstanceId=dds-bpxxxxxxxx
&SSLAction=Open
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyDBInstanceSSLResponse>
   <RequestId>6D806B11-078F-4154-BF9F-844F56D08964</RequestId>
</ModifyDBInstanceSSLResponse>
```

`JSON` format

```
{
 "RequestId": "6D806B11-078F-4154-BF9F-844F56D08964"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	IncorrectDBInstanceState	Current DB instance state does not support this operation.	The error message returned because the operation is not supported while the instance is in its current state. Check whether the specified parameters are correct.
403	IncorrectDBInstanceLockMode	Current DB instance lock mode does not support this operation.	The error message returned because the instance is locked.

12.1.3.10.2. DescribeDBInstanceSSL

You can call this operation to view the SSL settings of an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- The primary instance must be in the Running state.
- A replica set instance is used.
- The database engine version of the instance is 3.4, 4.0, or 4.2.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceSSL	The operation that you want to perform. Set the value to **DescribeDBInstanceSSL**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
SSLExpiredTime	String	2020-03-11T02:28:25Z	The time when the SSL certificate expires. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
RequestId	String	36BB1BC2-789C-4BBA-A519-C5B388E4B0D4	The ID of the request.
SSLStatus	String	Open	The status of the SSL feature. Valid values: • **Open**: The SSL feature is enabled. • **Closed**: The SSL feature is disabled.

Parameter	Type	Example	Description
CertCommonName	String	dds-bpxxxxxxxx.mongodb.rds.example.com	The name of the SSL certificate.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstanceSSL
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeDBInstanceSSLResponse>
   <SSLExpiredTime>2020-03-11T02:28:25Z</SSLExpiredTime>
   <RequestId>36BB1BC2-789C-4BBA-A519-C5B388E4B0D4</RequestId>
   <SSLStatus>Open</SSLStatus>
   <CertCommonName>dds-bpxxxxxxxx.mongodb.rds.aliyuncs.com</CertCommonName>
</DescribeDBInstanceSSLResponse>
```

`JSON` format

```
{
    "SSLExpiredTime":"2020-03-11T02:28:25Z",
    "SSLStatus":"Open",
    "RequestId":"36BB1BC2-789C-4BBA-A519-C5B388E4B0D4",
    "CertCommonName":"dds-bpxxxxxxxx.mongodb.rds.example.com"
}
```

12.1.3.11. Audit logs

12.1.3.11.1. DescribeAuditRecords

You can call this operation to view the audit logs of ApsaraDB for MongoDB instances.

When you call this operation, ensure that the audit log feature of the instance is enabled. Otherwise, the operation returns an empty audit log.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAuditRecords	The operation that you want to perform. Set the value to **DescribeAuditRecords**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
EndTime	String	Yes	2019-03-13T13:11:14Z	The end of the time range to query. The end time must be later than the start time. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
StartTime	String	Yes	2019-03-13T12:11:14Z	The beginning of the time range to query. Specify the time in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in the sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
Database	String	No	testdatabase	The name of the database. If you do not specify this parameter, this operation returns audit logs of all databases.
User	String	No	root	The account of the database. If you do not specify this parameter, this operation returns audit logs of all accounts.

Parameter	Type	Required	Example	Description
Form	String	No	Stream	The form of the audit log entry returend. Valid values: • **File**: returns a log file. If this parameter is set to File, only common parameters are returned. In this case, you must call the **DescribeAuditFiles** operation to view the download URL of the log file. • **Stream**: returns data streams. Default value: **Stream**.
QueryKeywords	String	No	slow	The keywords used for a query. Separate multiple keywords with spaces. You can specify a maximum of 10 keywords.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30**, **50**, and **100**. Default value: **30**.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
OrderType	String	No	asc	The order of time in which the log entries to return are sorted. Valid values: • **asc**: The log entries are sorted by time in ascending order. • **desc**: The log entries are sorted by time in descending order.

Response parameters

Parameter	Type	Example	Description
Items	Array of SQLRecord		An array that consists of the information of the audit log entries.
SQLRecord			
AccountName	String	root	The account of the database.

Parameter	Type	Example	Description
DBName	String	test123	The name of the database.
ExecuteTime	String	2019-03-11T03:30:27Z	The time when the statement was executed. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
HostAddress	String	11.xxx.xxx.xxx	The IP address of the client.
ReturnRowCounts	Long	2	The number of entries returned.
Syntax	String	{ \"atype\" : \"createCollection\" , \"param\" : { \"ns\" : \"123.test1\" }, \"result\": \"OK\" }	The statement that was executed.
TableName	String	C1	The name of the collection.
ThreadID	String	140682188297984	The ID of the thread.
TotalExecutionTimes	Long	700	The duration of the statement execution. Unit: microseconds.
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	30	The maximum number of records on the current page.
RequestId	String	3278BEB8-503B-4E46-8F7E-D26E040C9769	The ID of the request.
TotalRecordCount	Integer	40	The total number of entries.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAuditRecords
&StartTime=2019-03-13T12:11:14Z
&EndTime=2019-03-13T13:11:14Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalRecordCount>40</TotalRecordCount>
<PageRecordCount>30</PageRecordCount>
<RequestId>3278BEB8-503B-4E46-8F7E-D26E040C9769</RequestId>
<PageNumber>1</PageNumber>
<Items>
    <TableName>C1</TableName>
    <ThreadID>140682188297984</ThreadID>
    <ExecuteTime>2019-03-11T03:30:27Z</ExecuteTime>
    <ReturnRowCounts>2</ReturnRowCounts>
    <DBName>test123</DBName>
    <TotalExecutionTimes>700</TotalExecutionTimes>
    <Syntax>{ \"atype\" : \"createCollection\", \"param\" : { \"ns\" : \"123.test1\" }, \"r
esult\": \"OK\" }</Syntax>
    <HostAddress>11.xxx.xxx.xxx</HostAddress>
    <AccountName>root</AccountName>
</Items>
```

`JSON` format

```
{
    "TotalRecordCount":"40",
    "PageRecordCount":"30",
    "RequestId":"3278BEB8-503B-4E46-8F7E-D26E040C9769",
    "PageNumber":"1",
    "Items":[
        {
            "TableName":"C1",
            "ThreadID":"140682188297984",
            "ExecuteTime":"2019-03-11T03:30:27Z",
            "ReturnRowCounts":"2",
            "DBName":"test123",
            "TotalExecutionTimes":"700",
            "Syntax":"{ \\\"atype\\\" : \\\"createCollection\\\", \\\"param\\\" : { \\\"ns\
\\" : \\\"123.test1\\\" }, \\\"result\\\": \\\"OK\\\" }",
            "HostAddress":"11.xxx.xxx.xxx",
            "AccountName":"root"
        }
    ]
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidEndTime.Format	Specified end time is not valid.	The error message returned when the end time is invalid. Check the format of the specified time.

12.1.3.11.2. DescribeAuditFiles

You can call this operation to view the audit log files of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAuditFiles	The operation that you want to perform. Set the value to **DescribeAuditFiles**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in the specified cluster instance. **Note** If you do not specify this parameter, the audit logs of all mongos and shard nodes will be returned.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30**, **50**, and **100**. Default value: **30**.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.

Response parameters

Parameter	Type	Example	Description
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the instance.

Parameter	Type	Example	Description
Items	Array of LogFile		An array that consists of the information of audit log files.
LogFile			
FileID	Integer	406505	The ID of the file.
LogDownloadURL	String	http://xxxxxxxx.oss-cn-hangzhou.aliyuncs.com/custinsxxxxxx/custinsxxxxxx_xxxxxx.csv	The download URL for audit log files. **Note** If the download URL is unavailable, this parameter is empty.
LogEndTime	String	2019-03-12T09:23:15Z	The end of the time range for the audit log files displayed. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
LogSize	Long	98	The size of the audit log file. Unit: bytes.
LogStartTime	String	2019-03-11T08:19:29Z	The beginning of the time range for the audit log files displayed. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
LogStatus	String	Success	The status of the audit log file. • **Success**: The audit log file is archived. • **Failed**: The audit log file failed to be archived. • **Generating**: The audit log file is being archived. • **Initializing**: Archiving is not started.
PageNumber	Integer	1	The page number of the page returned.
PageRecordCount	Integer	1	The number of entries on the current page.
RequestId	String	F8CA8312-530A-413A-9129-F2BB32A8D404	The ID of the request.

Parameter	Type	Example	Description
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAuditFiles
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAuditFilesResponse>
   <Items>
      <LogFile>
         <LogStartTime>2019-03-11T08:19:29Z</LogStartTime>
         <LogEndTime>2019-03-12T09:23:15Z</LogEndTime>
         <LogStatus>Success</LogStatus>
         <FileID>406505</FileID>
         <LogDownloadURL>http://xxxxxxxx.oss-cn-hangzhou.aliyuncs.com/custinsxxxxxx/custins
xxxxxx_xxxxxx.csv</LogDownloadURL>
         <LogSize>98</LogSize>
      </LogFile>
   </Items>
   <PageNumber>1</PageNumber>
   <TotalRecordCount>1</TotalRecordCount>
   <RequestId>F8CA8312-530A-413A-9129-F2BB32A8D404</RequestId>
   <PageRecordCount>1</PageRecordCount>
</DescribeAuditFilesResponse>
```

`JSON` format

```
{
 "Items": {
  "LogFile": [
   {
    "LogStartTime": "2019-03-11T08:19:29Z",
    "LogEndTime": "2019-03-12T09:23:15Z",
    "LogStatus": "Success",
    "FileID": 406505,
    "LogDownloadURL": "http://xxxxxxxx.oss-cn-hangzhou.aliyuncs.com/custinsxxxxxx/custinsxxxxxx_xxxxxx.csv",
    "LogSize": 98
   }
  ]
 },
 "PageNumber": 1,
 "TotalRecordCount": 1,
 "RequestId": "F8CA8312-530A-413A-9129-F2BB32A8D404",
 "PageRecordCount": 1
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidDBInstanceClass.NotFound	Specified DB instance class is not found.	The error message returned because the specified instance type does not exist. Verify the specified instance type.
403	IncorrectDBInstanceType	Current DB instance type does not support this operation.	The error message returned because the operation is not supported by the current instance type.

12.1.3.11.3. DescribeAuditPolicy

You can call this operation to view whether the log audit feature is enabled for an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAuditPolicy	The operation that you want to perform. Set the value to **DescribeAuditPolicy**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
LogAuditStatus	String	Enable	The status of the log audit feature. Valid values: • Enable • Disabled Default value: Disabled.
RequestId	String	111E7B16-0A87-4CBA-B271-F34AD61E099F	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeAuditPolicy
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAuditPolicyResponse>
   <LogAuditStatus>Enable</LogAuditStatus>
   <RequestId>111E7B16-0A87-4CBA-B271-F34AD61E099F</RequestId>
</DescribeAuditPolicyResponse>
```

`JSON` format

```
{
 "LogAuditStatus": "Enable",
 "RequestId": "111E7B16-0A87-4CBA-B271-F34AD61E099F"
}
```

12.1.3.11.4. ModifyAuditLogFilter

You can call this operation to modify the type of audit logs to be collected from ApsaraDB for MongoDB instances.

The instance must be in the running state when you call this operation.

This operation is applicable only to replica set instances, but not to sharded cluster instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyAuditLogFilter	The operation that you want to perform. Set the value to **ModifyAuditLogFilter**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
Filter	String	Yes	insert,query,update,delete	The type of the audit log entries to be collected. Valid values: • **admin**: O&M and management operations • **slow**: slow queries • **query**: query operations • **insert**: insert operations • **update**: update operations • **delete**: delete operations • **command**: protocol commands such as the aggregate method
RoleType	String	No	primary	The role of the node in the instance. Valid values: • **primary** • **secondary**

Response parameters

Parameter	Type	Example	Description
RequestId	String	E209BE2B-F264-4B9D-81F6-A5A5FB1FBF28	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyAuditLogFilter
&Filter=insert,query,update,delete
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyAuditLogFilterResponse>
   <RequestId>E209BE2B-F264-4B9D-81F6-A5A5FB1FBF28</RequestId>
</ModifyAuditLogFilterResponse>
```

`JSON` format

```
{
 "RequestId": "E209BE2B-F264-4B9D-81F6-A5A5FB1FBF28"
}
```

12.1.3.11.5. DescribeAuditLogFilter

You can call this operation to view the types of audit logs collected from ApsaraDB for MongoDB instances.

The instance must be in the running state when you call this operation.

Note This operation is applicable only to replica set instances, but not to sharded cluster instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAuditLogFilter	The operation that you want to perform. Set the value to **DescribeAuditLogFilter**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
RoleType	String	No	primary	The role of the node in the instance. Valid values: • **primary** • **secondary**

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
Filter	String	admin,slow,insert,query,update,delete,command	The type of the audit log entries. Valid values: • **admin**: O&M and management operations • **slow**: slow queries • **query**: query operations • **insert**: insert operations • **update**: update operations • **delete**: delete operations • **command**: protocol commands such as the aggregate method
RequestId	String	D7C8BA0C-9350-487D-9B70-D69AF27FB1EB	The ID of the request.
RoleType	String	primary	The role of the node.

Examples

Sample requests

```
http(s)://mongodb.aliyuncs.com/? Action=DescribeAuditLogFilter
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeAuditLogFilterResponse>
   <Filter>admin,slow,insert,query,update,delete,command</Filter>
   <RoleType></RoleType>
   <RequestId>D7C8BA0C-9350-487D-9B70-D69AF27FB1EB</RequestId>
</DescribeAuditLogFilterResponse>
```

`JSON` format

```
{
 "Filter": "admin,slow,insert,query,update,delete,command",
 "RoleType": "",
 "RequestId": "D7C8BA0C-9350-487D-9B70-D69AF27FB1EB"
}
```

12.1.3.11.6. ModifyAuditPolicy

You can call this operation to enable or disable the audit log feature or set the retention period of audit logs for an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyAuditPolicy	The operation that you want to perform. Set the value to **ModifyAuditPolicy**.
AuditStatus	String	Yes	enable	The status of the audit log feature. Valid values: • **enable** • **disabled**
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
StoragePeriod	Integer	No	30	The retention period of audit logs. Unit: day. Valid values: **1** to **30**. Default value: **30**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DC04D812-F18D-4568-9B88-F260D9590116	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyAuditPolicy
&AuditStatus=enable
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyAuditPolicyResponse>
   <RequestId>DC04D812-F18D-4568-9B88-F260D9590116</RequestId>
</ModifyAuditPolicyResponse>
```

`JSON` format

```
{
 "RequestId": "DC04D812-F18D-4568-9B88-F260D9590116"
}
```

12.1.3.12. Log management

12.1.3.12.1. DescribeSlowLogRecords

You can call this operation to view the slow operation log details of the ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSlowLogRecords	The operation that you want to perform. Set the value to **DescribeSlowLogRecords**.
StartTime	String	Yes	2019-02-24T12:10Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-02-26T12:10Z	The end of the time range to query. The end time must be later than the start time. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the shard. **Note** This parameter is only valid when you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.

Parameter	Type	Required	Example	Description
DBName	String	No	mongodbtest	The name of the database.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30** to **100**.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
OrderType	String	No	asc	The order of time in which the log entries to return are sorted. Valid values: • **asc**: The log entries are sorted by time in ascending order. • **desc**: The log entries are sorted by time in descending order.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
Engine	String	MongoDB	The database engine.
Items	Array of LogRecords		An array that consists of the information of operational log entries.
LogRecords			
AccountName	String	root	The name of the user who performed the operation.
DBName	String	mongodbtest	The name of the database.
DocsExamined	Long	1000000	The number of documents scanned during the operation.

Parameter	Type	Example	Description
ExecutionStartTime	String	2019-02-25T01:41:28Z	The start time of the operation. Specify the time in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time must be in UTC.
HostAddress	String	47.xxx.xxx.xx	The host IP address that you use to connect to a database.
KeysExamined	Long	0	The data records that are scanned during indexing.
QueryTimes	String	600	The execution duration of the statement. Unit: milliseconds.
ReturnRowCounts	Long	0	The number of entries returned.
SQLText	String	{\"op\":\"query\",\"ns\":\"mongodbtest.customer\",\"query\":{\"find\":\"customer\",\"filter\":{\"name\":\"jack\"}}}	The SQL statement that is executed during the slow query operation.
TableName	String	C1	The name of the collection.
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	1	The number of slow query log entries returned on the page.
RequestId	String	414A4E5-4C36-4461-95FC-23757A20B5F8	The ID of the request.
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeSlowLogRecords
&StartTime=2019-02-24T12:10Z
&EndTime=2019-02-26T12:10Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalRecordCount>1</TotalRecordCount>
<PageRecordCount>1</PageRecordCount>
<RequestId>414A4E5-4C36-4461-95FC-23757A20B5F8</RequestId>
<PageNumber>1</PageNumber>
<Items>
    <LogRecords>
        <TableName>C1</TableName>
        <QueryTimes>600</QueryTimes>
        <ExecutionStartTime>2019-02-25T01:41:28Z</ExecutionStartTime>
        <ReturnRowCounts>0</ReturnRowCounts>
        <KeysExamined>0</KeysExamined>
        <DBName>mongodbtest</DBName>
        <DocsExamined>1000000</DocsExamined>
        <HostAddress>47.xxx.xxx.xx</HostAddress>
        <AccountName>root</AccountName>
        <SQLText>{\"op\":\"query\",\"ns\":\"mongodbtest.customer\",\"query\":{\"find\":\"cu
stomer\",\"filter\":{\"name\":\"jack\"}}}</SQLText>
    </LogRecords>
</Items>
<Engine>MongoDB</Engine>
```

`JSON` format

```
{
 "TotalRecordCount": "1",
 "PageRecordCount": "1",
 "RequestId": "414A4E5-4C36-4461-95FC-23757A20B5F8",
 "PageNumber": "1",
 "Items": {
  "LogRecords": [{
   "TableName": "C1",
   "QueryTimes": "600",
   "ExecutionStartTime": "2019-02-25T01:41:28Z",
   "ReturnRowCounts": "0",
   "KeysExamined": "0",
   "DBName": "mongodbtest",
   "DocsExamined": "1000000",
   "HostAddress": "47.xxx.xxx.xx",
   "AccountName": "root",
   "SQLText": "{\\\"op\\\":\\\"query\\\",\\\"ns\\\":\\\"mongodbtest.customer\\\",\\\"query\
\\":{\\\"find\\\":\\\"customer\\\",\\\"filter\\\":{\\\"name\\\":\\\"jack\\\"}}}"
  }]
 },
 "Engine": "MongoDB"
}
```


12.1.3.12.2. DescribeErrorLogRecords

You can call this operation to view the error logs of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeErrorLogRecords	The operation that you want to perform. Set the value to **DescribeErrorLogRecords**.
StartTime	String	Yes	2019-01-01T12:10Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-01-02T12:10Z	The end of the time range to query. The end time must be later than the start time. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you specify this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in the sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
RoleType	String	No	primary	The role of the node in the instance. Valid values: • **primary** • **secondary** **Note** If you set **NodeId** to the ID of a mongos node, the value of this parameter must be **primary**.
DBName	String	No	mongodbtest	The name of the database.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30** to **100**
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
Engine	String	MongoDB	The database engine.
Items	Array of LogRecords		An array that consists of the information of log entries.
LogRecords			
Category	String	NETWORK	The category of the log entry.
ConnInfo	String	conn18xxxxxx	The log connection information.
Content	String	xxxxxxxx	The content of the log entry.
CreateTime	String	2019-02-26T12:09:34Z	The time when the log entry was generated. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
Id	Integer	1111111111	The ID of the log entry.
PageNumber	Integer	1	The page number of the returned page.
PageRecordCount	Integer	1	The number of entries returned on each page.
RequestId	String	68BCBEC2-1E66-471F-A1A8-E3C60C0A80B0	The ID of the request.
TotalRecordCount	Integer	1	The total number of entries.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeErrorLogRecords
&StartTime=2019-01-01T12:10Z
&EndTime=2019-01-02T12:10Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeErrorLogRecordsResponse>
   <Items>
      <LogRecords>
         <Category>NETWORK</Category>
         <CreateTime>2019-02-26T12:09:34Z</CreateTime>
         <ConnInfo>conn18xxxxxx</ConnInfo>
         <Content>xxxxxxxx</Content>
      </LogRecords>
   </Items>
   <PageNumber>1</PageNumber>
   <TotalRecordCount>2</TotalRecordCount>
   <RequestId>68BCBEC2-1E66-471F-A1A8-E3C60C0A80B0</RequestId>
</DescribeErrorLogRecordsResponse>
```

`JSON` format

```
{
    "TotalRecordCount":"1",
    "PageRecordCount":"1",
    "RequestId":"68BCBEC2-1E66-471F-A1A8-E3C60C0A80B0",
    "PageNumber":"1",
    "Items":{
        "LogRecords":[
            {
                "ConnInfo":"conn18xxxxxx",
                "Category":"NETWORK",
                "Id":"1111111111",
                "Content":"xxxxxxxx",
                "CreateTime":"2019-02-26T12:09:34Z"
            }
        ]
    },"Engine":"MongoDB"
}
```

12.1.3.12.3. DescribeRunningLogRecords

You can call this operation to view the operational logs of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRunningLogRecords	The operation that you want to perform. Set the value to **DescribeRunningLogRecords**.

Parameter	Type	Required	Example	Description
StartTime	String	Yes	2019-01-01T12:10Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-01-02T12:10Z	The end of the time range to query. The end time must be later than the start time. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in the sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
DBName	String	No	mongodbtest	The name of the database.
RoleType	String	No	primary	The role of the node in the instance. Valid values: • **primary** • **secondary** **Note** If you set **NodeId** to the ID of a mongos node, the value of **RoleType** must be **primary**.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30** to **100**

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
OrderType	String	No	asc	The order of time in which the log entries to return are sorted. Valid values: • **asc**: The log entries are sorted by time in ascending order. • **desc**: The log entries are sorted by time in descending order.
ResourceGroupId	String	No	rg-axxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
Engine	String	MongoDB	The database engine.
Items	Array of LogRecords		An array that consists of the information of log entries.
LogRecords			
Category	String	NETWORK	The category of the log entry.
ConnInfo	String	conn18xxxxxx	The log connection information.
Content	String	end connection 11.xxx.xxx.xx:3xxxx (0 connections now open)\n	The content of the log entry.
CreateTime	String	2019-02-26T12:09:34Z	The time when the log entry was generated. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
Id	Integer	1111111111	The ID of the log entry.

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the page returned.
PageRecordCount	Integer	30	The number of entries returned on each page.
RequestId	String	45D2B592-DEBA-4347-BBF3-47FF6C97DBBC	The ID of the request.
TotalRecordCount	Integer	2	The total number of entries.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeRunningLogRecords
&StartTime=2019-01-01T12:10Z
&EndTime=2019-01-02T12:10Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRunningLogRecordsResponse>
   <Items>
      <LogRecords>
         <Category>-</Category>
         <CreateTime>2019-02-26T12:09:34Z</CreateTime>
         <ConnInfo>conn18xxxxxx</ConnInfo>
         <Content>
    end connection 11.xxx.xxx.xx:3xxxx (0 connections now open)
   </Content>
      </LogRecords>
      <LogRecords>
         <Category>NETWORK</Category>
         <CreateTime>2019-02-26T12:09:34Z</CreateTime>
         <ConnInfo>thread1</ConnInfo>
         <Content>connection accepted from 11.xxx.xxx.xx:3xxxx #1862051 (11 connections now
open)</Content>
      </LogRecords>
   </Items>
   <PageNumber>1</PageNumber>
   <TotalRecordCount>2</TotalRecordCount>
   <RequestId>45D2B592-DEBA-4347-BBF3-47FF6C97DBBC</RequestId>
</DescribeRunningLogRecordsResponse>
```

`JSON` format


```
{
    "Items": {
        "LogRecords": [
            {
                "Category": "-",
                "CreateTime": "2019-02-26T12:09:34Z",
                "ConnInfo": "conn18xxxxxx",
                "Content": "end connection 11.xxx.xxx.xx:3xxxx (0 connections now open)\n"
            },
            {
                "Category": "NETWORK",
                "CreateTime": "2019-02-26T12:09:34Z",
                "ConnInfo": "thread1",
                "Content": "connection accepted from 11.xxx.xxx.xx:3xxxx #1862051 (11 conne
ctions now open)"
            }
        ]
    },
    "PageNumber": 1,
    "TotalRecordCount": 2,
    "RequestId": "45D2B592-DEBA-4347-BBF3-47FF6C97DBBC"
}
```


12.1.3.13. Performance monitoring management

12.1.3.13.1. DescribeDBInstancePerformance

You can call this operation to view the performance data of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstancePerformance	The operation that you want to perform. Set the value to **DescribeDBInstancePerformance**.

Parameter	Type	Required	Example	Description
Key	String	Yes	MongoDB_DetailedSpaceUsage	The performance metric. Valid values: • **CpuUsage**: the CPU utilization percentage • **MemoryUsage**: the memory usage percentage • **MongoDB_IOPS**: the IOPS usage • **IOPSUsage**: the IOPS usage percentage. • **MongoDB_DetailedSpaceUsage**: the disk usage. • **DiskUsage** : the disk usage percentage • **MongoDB_Opcounters** : the operation QPS • **MongoDB_Connections** : the number of connections • **MongoDB_Cursors** : the number of cursors • **MongoDB_Network** : the network traffic • **MongoDB_Global_Lock_Current_Queue** : the global lock waiting queues • **MongoDB_Wt_Cache** : the WiredTiger storage **Note** Separate multiple metrics with commas (,).
StartTime	String	Yes	2019-03-11T12:30Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-03-11T12:30Z	The end of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC. The end time must be later than the start time.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in a sharded cluster instance. You can specify this parameter to view the performance of a single node. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
ReplicaSetRole	String	No	Primary	The role of the node. Valid values: • Primary • Secondary **Note** If you set the **DBInstanceId** parameter to the ID of a standalone instance, the value of this parameter can only be **Primary**.
RoleId	String	No	60xxxxx	The role ID of a node in a instance. You can call the **DescribeReplicaSetRole** operation to view role IDs. **Note** This parameter is valid only if you set the DBInstanceId parameter to the ID of a sharded cluster instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	267F98DC-367D-4F20-B137-8B5B664D1C5D	The ID of the request.

Parameter	Type	Example	Description
StartTime	String	2019-03-11T12:20Z	The beginning of the time range to query. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
EndTime	String	2019-03-11T12:30Z	The beginning of the time range to query. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
PerformanceKeys	Array of PerformanceKey		An array that consists of the information of performance metrics.
PerformanceKey			
Key	String	MongoDB_DetailedSpaceUsage	Performance metric.
PerformanceValues	Array of PerformanceValue		An array that consists of the values of performance metrics.
PerformanceValue			
Date	String	2019-03-11T12:21:51Z	The date and time when the value is generated.
Value	String	0.6	The value of a performance metric.
Unit	String	MB	The unit of the performance metric.
ValueFormat	String	cpu_usage	The format of the performance metric value. If the performance metric contains multiple fields, the fields are separated with ampersands (**&**). For example, if you query disk usage, the returned ValueFormat is **ins_size&data_size&log_size**.
DBInstanceId	String	dds-bpxxxxxxxx	The ID of the request.

Parameter	Type	Example	Description
Engine	String	MongoDB	The database engine. It is fixed to **MongoDB**.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstancePerformance
&Key=MongoDB_DetailedSpaceUsage
&StartTime=2019-03-11T12:30Z
&EndTime=2019-03-11T12:30Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PerformanceKeys>
    <ValueFormat>cpu_usage</ValueFormat>
    <Unit>MB</Unit>
    <Key>MongoDB_DetailedSpaceUsage</Key>
</PerformanceKeys>
<PerformanceKeys>
    <PerformanceValues>
        <Value>0.6</Value>
        <Date>2019-03-11T12:21:51Z</Date>
    </PerformanceValues>
</PerformanceKeys>
<EndTime>2019-03-11T12:30Z</EndTime>
<RequestId>267F98DC-367D-4F20-B137-8B5B664D1C5D</RequestId>
<DBInstanceId>dds-bpxxxxxxxx</DBInstanceId>
<StartTime>2019-03-11T12:20Z</StartTime>
<Engine>MongoDB</Engine>
```

`JSON` format

```
{
    "PerformanceKeys":[
        {
            "ValueFormat":"cpu_usage",
            "Unit":"MB",
            "Key":"MongoDB_DetailedSpaceUsage"
        },
        {
            "PerformanceValues":[
                {
                    "Value":"0.6",
                    "Date":"2019-03-11T12:21:51Z"
                }
            ]
        }
    ],
    "EndTime":"2019-03-11T12:30Z",
    "RequestId":"267F98DC-367D-4F20-B137-8B5B664D1C5D",
    "DBInstanceId":"dds-bpxxxxxxxx",
    "StartTime":"2019-03-11T12:20Z",
    "Engine":"MongoDB"
}
```


12.1.3.13.2. DescribeDBInstanceMonitor

You can call this operation to set the collection frequency of monitoring data for an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDBInstanceMonitor	The operation that you want to perform. Set the value to **DescribeDBInstanceMonitor**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
Granularity	String	300	The collection frequency of monitoring data. The value is fixed to **300** . Unit: seconds.
RequestId	String	EFD65226-08CC-4C4D-B6A4-CB3C382F67B0	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeDBInstanceMonitor
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Granularity>300</Granularity>
<RequestId>EFD65226-08CC-4C4D-B6A4-CB3C382F67B0</RequestId>
```

`JSON` format

```
{
 "Granularity": 300,
 "RequestId": "EFD65226-08CC-4C4D-B6A4-CB3C382F67B0"
}
```

12.1.3.14. Parameter management

12.1.3.14.1. DescribeParameterModificationHistory

You can call this operation to view the parameter modification records of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeParameterModificationHistory	The operation that you want to perform. Set the value to **DescribeParameterModificationHistroy**.
StartTime	String	Yes	2019-01-01T12:10Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-01-02T12:10Z	The end of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC. The end time must be later than the start time.

Parameter	Type	Required	Example	Description
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
CharacterType	String	Yes	db	The role of the instance. Valid values: • **db**: the shard node • **cs**: the Configserver node • **mongos**: the mongos node • **logic**: the sharded cluster instance
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard in the specified sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
RegionId	String	No	cn-hangzhou	The region ID of the instance. You can call the **DescribeDBInstanceAttribute** operation to query the region ID of the instance.

Response parameters

Parameter	Type	Example	Description
HistoricalParameters	Array of HistoricalParameter		An array that consists of the information of parameter modification records.
HistoricalParameter			
ModifyTime	String	2019-03-12T07:58:24Z	The time when the parameter was modified. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
NewParameterValue	String	200	The parameter value after modification.

Parameter	Type	Example	Description
OldParameterValue	String	100	The parameter value before modification.
ParameterName	String	operationProfiling.slowOpThresholdMs	The name of the modified parameter.
RequestId	String	B1BB6E0E-B4EF-4145-81FA-A07719860248	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeParameterModificationHistory
&StartTime=2019-01-01T12:10Z
&EndTime=2019-01-02T12:10Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeParameterModificationHistoryResponse>
   <HistoricalParameters>
      <HistoricalParameter>
         <OldParameterValue>100</OldParameterValue>
         <ModifyTime>2019-03-12T07:58:24Z</ModifyTime>
         <NewParameterValue>200</NewParameterValue>
         <ParameterName>operationProfiling.slowOpThresholdMs</ParameterName>
      </HistoricalParameter>
   </HistoricalParameters>
   <RequestId>B1BB6E0E-B4EF-4145-81FA-A07719860248</RequestId>
</DescribeParameterModificationHistoryResponse>
```

`JSON` format

```
{
 "HistoricalParameters": {
  "HistoricalParameter": [
   {
    "OldParameterValue": "100",
    "ModifyTime": "2019-03-12T07:58:24Z",
    "NewParameterValue": "200",
    "ParameterName": "operationProfiling.slowOpThresholdMs"
   }
  ]
 },
 "RequestId": "B1BB6E0E-B4EF-4145-81FA-A07719860248"
}
```


12.1.3.14.2. DescribeParameters

You can call this operation to view parameter configurations of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeParameters	The operation that you want to perform. Set the value to**DescribeParameters**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard in the specified sharded cluster instance. **Note** This parameter is only valid when you set the**DBInstanceId**parameter to the ID of a sharded cluster instance.

Parameter	Type	Required	Example	Description
CharacterType	String	No	mongos	The type of the database account. Valid values: • **mongos**: The account that can be used to log on to a mongos node • **shard**: The account that can be used to log on to a shard node

Response parameters

Parameter	Type	Example	Description
ConfigParameters	Array of Parameter		An array that consists of the information of configured parameters.
Parameter			
CheckingCode	String	[0-65536]	The valid values of the parameter.
ForceRestart	Boolean	true	Indicates whether a restart is required for parameter modifications to take effect. • **false**: A restart is not required. Modifications take effect immediately after they are made. • **true**: A restart is required for modifications to take effect.
ModifiableStatus	Boolean	true	Indicates whether the parameter is modifiable. • **false** • **true**
ParameterDescription	String	The threshold in milliseconds at which the database profiler considers a query slow, default is 100.	The description of the parameter.
ParameterName	String	operationProfiling.slowOpThresholdMs	The name of the parameter.
ParameterValue	String	200	The value of the parameter.

Parameter	Type	Example	Description
RequestId	String	3ADD0C7D-2D2A-4F15-88FF-E7AC9B9FDCC8	The ID of the request.
RunningParameters	Array of Parameter		An array that consists of the information of instance parameters that have taken effect.
Parameter			
CheckingCode	String	[33554432-268435456]	The valid values of the parameter.
ForceRestart	String	false	Indicates whether a restart is required for parameter modifications to take effect. • **false**: A restart is not required. Modifications take effect immediately after they are made. • **true**: A restart is required for modifications to take effect.
ModifiableStatus	String	true	Indicates whether the parameter is modifiable. • **false** • **true**
ParameterDescription	String	The maximum memory bytes that sort stage may use, default is 33554432(i.e. 32MB)	The description of the parameter.
ParameterName	String	setParameter.internalQueryExecMaxBlockingSortBytes	The name of the parameter.
ParameterValue	String	33554432	The value of the parameter.
EngineVersion	String	4.0	The engine version of the instance.
Engine	String	mongodb	The database engine of the instance. Default value: **mongodb**.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeParameters
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeParametersResponse>
      <ConfigParameters>
            <Parameter>
                  <ParameterDescription>The threshold in milliseconds at which the database
profiler considers a query slow, default is 100. </ParameterDescription>
                  <ParameterValue>200</ParameterValue>
                  <CheckingCode>[0-65536]</CheckingCode>
                  <ForceRestart>false</ForceRestart>
                  <ModifiableStatus>true</ModifiableStatus>
                  <ParameterName>operationProfiling.slowOpThresholdMs</ParameterName>
            </Parameter>
      </ConfigParameters>
      <RequestId>3ADD0C7D-2D2A-4F15-88FF-E7AC9B9FDCC8</RequestId>
      <RunningParameters>
            <Parameter>
                  <ParameterDescription></ParameterDescription>
                  <ParameterValue>zlib</ParameterValue>
                  <CheckingCode>snappy|zlib|disabled</CheckingCode>
                  <ForceRestart>true</ForceRestart>
                  <ModifiableStatus>true</ModifiableStatus>
                  <ParameterName>net.compression.compressors</ParameterName>
            </Parameter>
            <Parameter>
                  <ParameterDescription>The level of database profiling, which inserts info
rmation about operation performance into the system.profile collection. 'off' for no profil
ing, 'slowOp' for only includes slow operations, 'all' for includes all operations, default
is 'slowOp'. </ParameterDescription>
                  <ParameterValue>slowOp</ParameterValue>
                  <CheckingCode>off|slowOp|all</CheckingCode>
                  <ForceRestart>false</ForceRestart>
                  <ModifiableStatus>true</ModifiableStatus>
                  <ParameterName>operationProfiling.mode</ParameterName>
            </Parameter>
            <Parameter>
                  <ParameterDescription>The threshold in milliseconds at which the database
profiler considers a query slow, default is 100. </ParameterDescription>
                  <ParameterValue>220</ParameterValue>
                  <CheckingCode>[0-65536]</CheckingCode>
                  <ForceRestart>false</ForceRestart>
                  <ModifiableStatus>true</ModifiableStatus>
                  <ParameterName>operationProfiling.slowOpThresholdMs</ParameterName>
            </Parameter>
            <Parameter>
                  <ParameterDescription>The expiration threshold in milliseconds for idle c
ursors before MongoDB removes them; i.e. MongoDB removes cursors that have been idle for th
e specified cursorTimeoutMillis. default is 600000(i.e. 10 minutes)</ParameterDescription>
```

```
                <ParameterValue>600000</ParameterValue>
                <CheckingCode>[1-2147483647]</CheckingCode>
                <ForceRestart>false</ForceRestart>
                <ModifiableStatus>true</ModifiableStatus>
                <ParameterName>setParameter.cursorTimeoutMillis</ParameterName>
            </Parameter>
            <Parameter>
                <ParameterDescription>The maximum memory bytes that sort stage may use, d
efault is 33554432(i.e. 32MB)</ParameterDescription>
                <ParameterValue>33554432</ParameterValue>
                <CheckingCode>[33554432-268435456]</CheckingCode>
                <ForceRestart>false</ForceRestart>
                <ModifiableStatus>true</ModifiableStatus>
                <ParameterName>setParameter.internalQueryExecMaxBlockingSortBytes</Parame
terName>
            </Parameter>
      </RunningParameters>
      <EngineVersion>4.0</EngineVersion>
      <Engine>mongodb</Engine>
</DescribeParametersResponse>
```

`JSON` format

```
{
    "ConfigParameters": {
        "Parameter": [
            {
                "ParameterDescription": "The threshold in milliseconds at which the databas
e profiler considers a query slow, default is 100.",
                "ParameterValue": "200",
                "CheckingCode": "[0-65536]",
                "ForceRestart": false,
                "ModifiableStatus": true,
                "ParameterName": "operationProfiling.slowOpThresholdMs"
            }
        ]
    },
    "RequestId": "3ADD0C7D-2D2A-4F15-88FF-E7AC9B9FDCC8",
    "RunningParameters": {
        "Parameter": [
            {
                "ParameterDescription": "",
                "ParameterValue": "zlib",
                "CheckingCode": "snappy|zlib|disabled",
                "ForceRestart": "true",
                "ModifiableStatus": "true",
                "ParameterName": "net.compression.compressors"
            },
            {
                "ParameterDescription": "The level of database profiling, which inserts inf
ormation about operation performance into the system.profile collection. 'off' for no profi
ling, 'slowOp' for only includes slow operations, 'all' for includes all operations, defaul
t is 'slowOp'.",
```

```
                "ParameterValue": "slowOp",
                "CheckingCode": "off|slowOp|all",
                "ForceRestart": "false",
                "ModifiableStatus": "true",
                "ParameterName": "operationProfiling.mode"
            },
            {
                "ParameterDescription": "The threshold in milliseconds at which the databas
e profiler considers a query slow, default is 100.",
                "ParameterValue": "220",
                "CheckingCode": "[0-65536]",
                "ForceRestart": "false",
                "ModifiableStatus": "true",
                "ParameterName": "operationProfiling.slowOpThresholdMs"
            },
            {
                "ParameterDescription": "The expiration threshold in milliseconds for idle
cursors before MongoDB removes them; i.e. MongoDB removes cursors that have been idle for t
he specified cursorTimeoutMillis. default is 600000(i.e. 10 minutes)",
                "ParameterValue": "600000",
                "CheckingCode": "[1-2147483647]",
                "ForceRestart": "false",
                "ModifiableStatus": "true",
                "ParameterName": "setParameter.cursorTimeoutMillis"
            },
            {
                "ParameterDescription": "The maximum memory bytes that sort stage may use,
default is 33554432(i.e. 32MB)",
                "ParameterValue": "33554432",
                "CheckingCode": "[33554432-268435456]",
                "ForceRestart": "false",
                "ModifiableStatus": "true",
                "ParameterName": "setParameter.internalQueryExecMaxBlockingSortBytes"
            }
        ]
    },
    "EngineVersion": "4.0",
    "Engine": "mongodb"
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidDBInstanceClass.NotFound	Specified DB instance class is not found.	The error message returned when the specified instance type does not exists. Verify the specified instance type.
403	IncorrectDBInstanceType	Current DB instance type does not support this operation.	The error message returned when the current operation is not supported by the instance type of the specified instance.

12.1.3.14.3. ModifyParameters

You can call this operation to modify the parameters of an AsparaDB for MongoDB instance.

The instance must be in the running state when you call this operation.

> **Note** If some of the modified parameters take effect only after the instance is restarted, the instance is automatically restarted after the operation is complete. You can call the **DescribeParameterTemplates** operation to query the parameters that take effect only after the instance is restarted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyParameters	The operation that you want to perform. Set the value to**ModifyParameters**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
Parameters	String	Yes	{"operationProfiling.slowOpThresholdMs":"300"}	The parameters to be modified and their new values. Set this parameter to a JSON string. For example, set the parameter in the {"name":"value","name":"value2"} format.
NodeId	String	No	d-bpxxxxxxxx	The ID of the mongos or shard node in the specified sharded cluster instance. **Note** This parameter is only valid when you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.

Parameter	Type	Required	Example	Description
CharacterType	String	No	db	The role of the instance. Valid values: • **db**: the shard node • **cs**: the Configserver node • **mongos**: the mongos node • **logic**: the sharded cluster instance

Response parameters

Parameter	Type	Example	Description
RequestId	String	36923CC2-DDAB-4B48-A144-DA92C1E19537	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyParameters
&DBInstanceId=dds-bpxxxxxxxx
&Parameters={"operationProfiling.slowOpThresholdMs":"300"}
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyParametersResponse>
      <RequestId>36923CC2-DDAB-4B48-A144-DA92C1E19537</RequestId>
</ModifyParametersResponse>
```

`JSON` format

```
{
    "RequestId": "36923CC2-DDAB-4B48-A144-DA92C1E19537"
}
```

12.1.3.15. Backup and recovery

12.1.3.15.1. DescribeBackupPolicy

You can call this operation to view the backup policy of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackupPolicy	The operation that you want to perform. Set the value to **DescribeBackupPolicy**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
BackupRetentionPeriod	String	7	The backup retention period. Unit: days.
PreferredBackupPeriod	String	Monday,Wednesday,Friday,Sunday	The period of backup. Valid values: • **Monday** • **Tuesday** • **Thursday** • **Friday** • **Saturday** • **Sunday**
PreferredBackupTime	String	20:00Z-21:00Z	The time when the data was backed up. The time is in the *HH:mm*Z-*HH:mm*Z format. The time is displayed in UTC.
PreferredNextBackupTime	String	2020-05-13T22:56Z	The next backup time. The time is in the *yyyy-MM-dd*T*HH:mm*Z format. The time is displayed in UTC.
RequestId	String	C2C283A1-1CC4-4DD9-B985-3811E0244A45	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeBackupPolicy
DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PreferredBackupPeriod>Monday,Wednesday,Friday,Sunday</PreferredBackupPeriod>
<RequestId>C2C283A1-1CC4-4DD9-B985-3811E0244A45</RequestId>
<PreferredBackupTime>20:00Z-21:00Z</PreferredBackupTime>
<PreferredNextBackupTime>2020-05-13T22:56Z</PreferredNextBackupTime>
<BackupRetentionPeriod>7</BackupRetentionPeriod>
```

`JSON` format

```
{
    "PreferredBackupPeriod":"Monday,Wednesday,Friday,Sunday",
    "RequestId":"C2C283A1-1CC4-4DD9-B985-3811E0244A45",
    "PreferredBackupTime":"20:00Z-21:00Z",
    "PreferredNextBackupTime":"2020-05-13T22:56Z",
    "BackupRetentionPeriod":"7"
}
```

12.1.3.15.2. ModifyBackupPolicy

You can call this operation to modify the backup policy of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBackupPolicy	The operation that you want to perform. Set the value to **ModifyBackupPolicy**.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.
PreferredBackupPeriod	String	Yes	Monday,Wednesday,Friday,Sunday	The period of backup. Valid values: • **Monday** • **Tuesday** • **Wednesday** • **Thursday** • **Friday** • **Saturday** • **Sunday** **Note** Separate multiple values with commas (,).

Parameter	Type	Required	Example	Description
PreferredBackupTime	String	Yes	03:00Z-04:00Z	The time to back up data. Specify the time in the *HH:mm*Z-*HH:mm*Z format. The time must be in UTC. **Note** The maximum period is 1 hour.

Response parameters

Parameter	Type	Example	Description
RequestId	String	644A359C-B871-4DD3-97B5-ED91EF5809C2	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=ModifyBackupPolicy
&DBInstanceId=dds-bpxxxxxxxx
&PreferredBackupPeriod=Monday,Wednesday,Friday,Sunday
&PreferredBackupTime=03:00Z-04:00Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBackupPolicyResponse>
   <RequestId>644A359C-B871-4DD3-97B5-ED91EF5809C2</RequestId>
</ModifyBackupPolicyResponse>
```

`JSON` format

```
{
 "RequestId": "644A359C-B871-4DD3-97B5-ED91EF5809C2"
}
```

12.1.3.15.3. CreateBackup

You can call this operation to manually back up an ApsaraDB for MongoDB instance.

The instance must be in the running state when you call this operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateBackup	The operation that you want to perform. Set the value to **CreateBackup**.
DBInstanceId	String	Yes	d-bpxxxxxxxx	The ID of the instance.
BackupMethod	String	No	Logical	The backup method of the instance. Default value: Physical. Valid values: • **Logical** • **Physical**

Response parameters

Parameter	Type	Example	Description
BackupId	String	5664xxxx	The ID of the backup set.
RequestId	String	7016B12F-7F64-40A4-BAFF-013F02AC82FC	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=CreateBackup
DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateBackupResponse>
   <RequestId>7016B12F-7F64-40A4-BAFF-013F02AC82FC</RequestId>
   <BackupId>5664xxxx</BackupId>
</CreateBackupResponse>
```

`JSON` format

```
{
    "RequestId": "7016B12F-7F64-40A4-BAFF-013F02AC82FC",
    "BackupId": "5664xxxx"
}
```

12.1.3.15.4. DescribeBackups

You can call this operation to view the backups of an ApsaraDB for MongoDB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackups	The operation that you want to perform. Set the value to **DescribeBackups**.
StartTime	String	Yes	2019-03-12T12:00Z	The beginning of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC.
EndTime	String	Yes	2019-03-13T12:00Z	The end of the time range to query. Specify the time in the *yyyy-MM-dd*T*HH:mm*Z format. The time must be in UTC. The end time must be later than the start time.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance. **Note** If you set this parameter to the ID of a sharded cluster instance, you must also specify the **NodeId** parameter.
NodeId	String	No	d-bpxxxxxxxx	The ID of the shard node in the sharded cluster instance. **Note** This parameter is valid only if you set the **DBInstanceId** parameter to the ID of a sharded cluster instance.
BackupId	String	No	12345678	The ID of the backup set.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30, 50, and 100**. Default value: **30**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	30	The number of entries returned per page.
RequestId	String	8925E66F-1971-4C8C-90A7-F93BF1867E25	The ID of the request.
TotalCount	Integer	1	The total number of backup sets.
Backups	Array of Backup		An array that consists of the information of backup sets.
Backup			
BackupDBNames	String	mongodbtest,new,test	The name of the database that has been backed up.
BackupDownloadURL	String	http://xxxxx.oss-cn-hangzhou.aliyuncs.com/xxxxx/hinsxxxxx_data_xxxxx.tar.gz	The Internet download URL of the backup file. If the download URL is unavailable, this parameter is an empty string.
BackupEndTime	String	2019-03-13T04:34:57Z	The end of the backup time range. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
BackupId	Integer	11111111	The ID of the backup set.

Parameter	Type	Example	Description
BackupIntranetDownloadURL	String	http://xxxxx.oss-cn-hangzhou-internal.example.com/xxxxx/xxxxx.tar.gz	The internal download URL of the backup file. **Note** You can download the backup file by using this URL on the Elastic Compute Service (ECS) instance that is connected to the ApsaraDB for MongoDB instance. The ECS instance and ApsaraDB for MongoDB instance must be in the classic network of the same region or in the same virtual private cloud (VPC).
BackupMethod	String	Physical	The backup method. Valid values: • **Snapshot** • **Physical** • **Logical**
BackupMode	String	Automated	The backup mode. Valid values: • **Automated** • **Manual**
BackupSize	Long	335520510	The size of the backup file. Unit: bytes.
BackupStartTime	String	2019-03-13T04:32:42Z	The beginning of the backup time range. The time is in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time is displayed in UTC.
BackupStatus	String	Success	The status of the backup. Valid values: • **Success**: The backup task is successful. • **Failed**: The backup task failed.
BackupType	String	FullBackup	The backup type. Valid values: • **FullBackup**: full backup. • **IncrementalBackup**: incremental backup.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeBackups
&StartTime=2019-03-12T12:00Z
&EndTime=2019-03-13T12:00Z
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>1</TotalCount>
<PageSize>30</PageSize>
<RequestId>8925E66F-1971-4C8C-90A7-F93BF1867E25</RequestId>
<PageNumber>1</PageNumber>
<Backups>
    <BackupMethod>Physical</BackupMethod>
    <BackupDownloadURL>http://xxxxx.oss-cn-hangzhou.aliyuncs.com/xxxxx/hinsxxxxx_data_xxxxx
.tar.gz</BackupDownloadURL>
    <BackupIntranetDownloadURL>http://xxxxx.oss-cn-hangzhou-internal.example.com/xxxxx/xxxx
x.tar.gz</BackupIntranetDownloadURL>
    <BackupSize>335520510</BackupSize>
    <BackupMode>Automated</BackupMode>
    <BackupEndTime>2019-03-13T04:34:57Z</BackupEndTime>
    <BackupStartTime>2019-03-13T04:32:42Z</BackupStartTime>
    <BackupType>FullBackup</BackupType>
    <BackupId>11111111</BackupId>
    <BackupDBNames>mongodbtest,new,test</BackupDBNames>
    <BackupStatus>Success</BackupStatus>
</Backups>
```

`JSON` format

```
{
    "TotalCount":"1",
    "PageSize":"30",
    "RequestId":"8925E66F-1971-4C8C-90A7-F93BF1867E25",
    "PageNumber":"1",
    "Backups":[
        {
            "BackupMethod":"Physical",
            "BackupDownloadURL":"http://xxxxx.oss-cn-hangzhou.aliyuncs.com/xxxxx/hinsxxxxx_
data_xxxxx.tar.gz",
            "BackupIntranetDownloadURL":"http://xxxxx.oss-cn-hangzhou-internal.example.com/
xxxxx/xxxxx.tar.gz",
            "BackupSize":"335520510",
            "BackupMode":"Automated",
            "BackupEndTime":"2019-03-13T04:34:57Z",
            "BackupStartTime":"2019-03-13T04:32:42Z",
            "BackupType":"FullBackup",
            "BackupId":"11111111",
            "BackupDBNames":"mongodbtest,new,test",
            "BackupStatus":"Success"
        }
    ]
}
```


12.1.3.15.5. RestoreDBInstance

You can call this operation to restore data to the current ApsaraDB for MongoDB instance.

This operation is applicable only to replica set instances, but not to standalone instances or sharded cluster instances. You also can use the following methods to clone an instance: Create an instance from a backup to clone a standalone instance. Call the CreateShardingDBInstance operation to clone a sharded cluster instance.

> **Note** This operation overwrites the data of the current instance, and the data cannot be recovered. Proceed with caution.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RestoreDBInstance	The operation that you want to perform. Set the value to **RestoreDBInstance**.

Parameter	Type	Required	Example	Description
BackupId	Integer	Yes	11111111	The ID of the backup set. **Note** You can call the **DescribeBackups** operation to view the backup ID.
DBInstanceId	String	Yes	dds-bpxxxxxxxx	The ID of the instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	973DCB8F-56B3-4102-8777-3A90495927F7	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=RestoreDBInstance
&BackupId=11111111
&DBInstanceId=dds-bpxxxxxxxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RestoreDBInstanceResponse>
   <RequestId>973DCB8F-56B3-4102-8777-3A90495927F7</RequestId>
</RestoreDBInstanceResponse>
```

`JSON` format

```
{
 "RequestId": "973DCB8F-56B3-4102-8777-3A90495927F7"
}
```

12.1.3.15.6. DescribeBackupDBs

You can call this operation to view the databases at a specified time or the databases in a specified backup set before you restore a database for an ApsaraDB for MongoDB instance.

> **Note** You can call the **CreateDBInstance** operation to restore a database for an ApsaraDB for MongoDB instance.

Before you call this operation, make sure that the following requirements are met:

- A replica set instance is used.
- The database engine version of the instance must be **3.0**, **3.4**, **4.0**, or **4.2**.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBackupDBs	The operation that you want to perform. Set the value to **DescribeBackupDBs**.
SourceDBInstance	String	Yes	dds-bpxxxxxxxx	The ID of the source instance.
PageNumber	Integer	No	1	The number of the page to return. The value must be a positive integer. Default value: **1**.
PageSize	Integer	No	30	The number of entries to return on each page. Valid values: **30**, **50**, and **100**. Default value: **30**.
RestoreTime	String	No	2019-08-22T12:00:00Z	The point in time at which the instance will be restored. Specify the time in the *yyyy-MM-dd*T*HH:mm:ss*Z format. The time must be in UTC. **Note** • It can be any time within the past seven days. The time must be earlier than the current time, but later than the time when the database was created. • You must specify either this parameter or the **BackupId** parameter.

Parameter	Type	Required	Example	Description
BackupId	String	No	5664xxxx	The ID of the backup set. **Note** • You can call the **DescribeBackups** operation to view the backup ID. • You must specify this parameter or the **RestoreTime** parameter.
ResourceGroupId	String	No	rg-axxxxxxxx	The ID of the resource group.

Response parameters

Parameter	Type	Example	Description
Databases	Array of Database		An array that consists of inforamtion of databases.
Database			
DBName	String	mongodbtest	The name of the database.
PageNumber	Integer	1	The page number of the returned page.
TotalCount	Integer	5	The number of databases.
PageSize	Integer	30	The number of entries returned on each page.
RequestId	String	1AF0AD89-ED4F-44AD-B65F-BFC1D5CD9455	The ID of the request.

Examples

Sample requests

```
http(s)://mongodb.example.com/? Action=DescribeBackupDBs
&SourceDBInstance=dds-bpxxxxxxxx
&RestoreTime=2019-08-22T12:00:00Z
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>5</TotalCount>
<Databases>
    <DBName>mongodbtest</DBName>
</Databases>
<PageSize>30</PageSize>
<RequestId>1AF0AD89-ED4F-44AD-B65F-BFC1D5CD9455</RequestId>
<PageNumber>1</PageNumber>
```

`JSON` format

```
{
    "TotalCount":"5",
    "Databases":[
        {
            "DBName":"mongodbtest"
        }
    ],
    "PageSize":"30",
    "RequestId":"1AF0AD89-ED4F-44AD-B65F-BFC1D5CD9455",
    "PageNumber":"1"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	IncorrectDBInstanceType	Current DB instance type does not support this operation.	The error message returned when the current operation is not supported by the instance type of the specified instance.

12.1.3.16. Instance states

This topic descries the instance states of ApsaraDB for MongoDB instances.

State	Description
Creating	The instance is being created.
DBInstanceClassChanging	The instance specifications are being changed.

State	Description
DBInstanceNetTypeChanging	The network type of the instance is being changed.
Deleting	The instance is being deleted.
EngineVersionUpgrading	The database engine version of the instance is being upgraded.
GuardSwitching	The instance is undergoing a disaster-triggered failover.
HASwitching	The instance is undergoing a primary/secondary switching.
Importing	Data is being imported into the instance.
ImportingFromOthers	A database is being imported into the instance.
LinkSwitching	The instance is undergoing a link switching.
MinorVersionUpgrading	The minor version of the instance is being upgraded.
NET_CREATING	A network connection to the instance is being created.
NET_DELETING	A network connection to the instance is being deleted.
NodeCreating	A node is being created in the instance.
NodeDeleting	A node is being deleted in the instance.
Rebooting	The instance is being restarted.
Restoring	The cluster is being restored from the backup.
Running	The cluster is running.
SSLModifying	The SSL status of the instance is changing.
TempDBInstanceCreating	A node is being deleted in the instance.
Transing	The instance is being migrated.
TransingToOthers	A database in the instance is being migrated.

13.Data Management (DMS)

13.1. Developer Guide

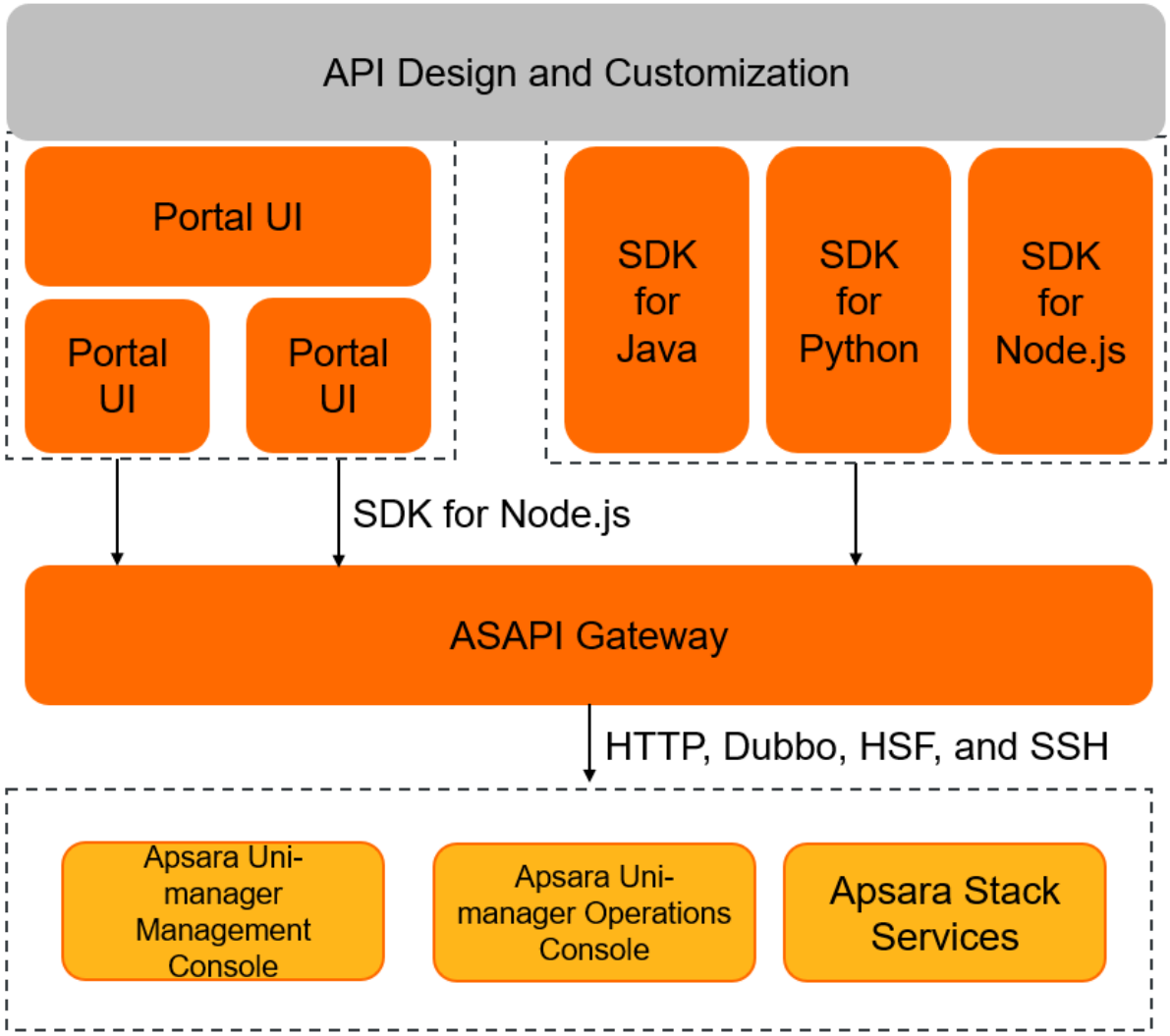
13.1.1. Use ASAPI to call Apsara Stack SDKs

13.1.1.1. 文档标题缺失，请补全后重新导出

13.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

13.1.1.1.2. Preparations

13.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

13.1.1.1.2.2. View information about API operations

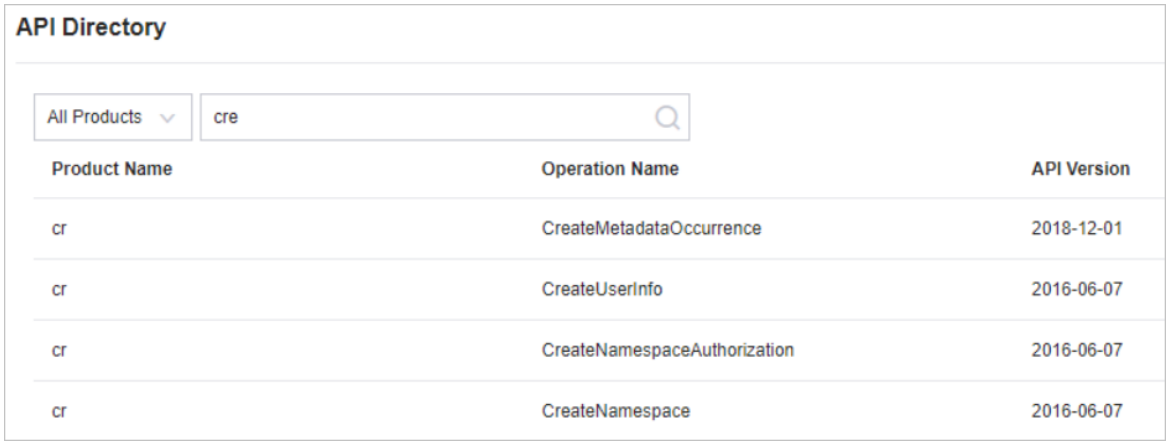
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



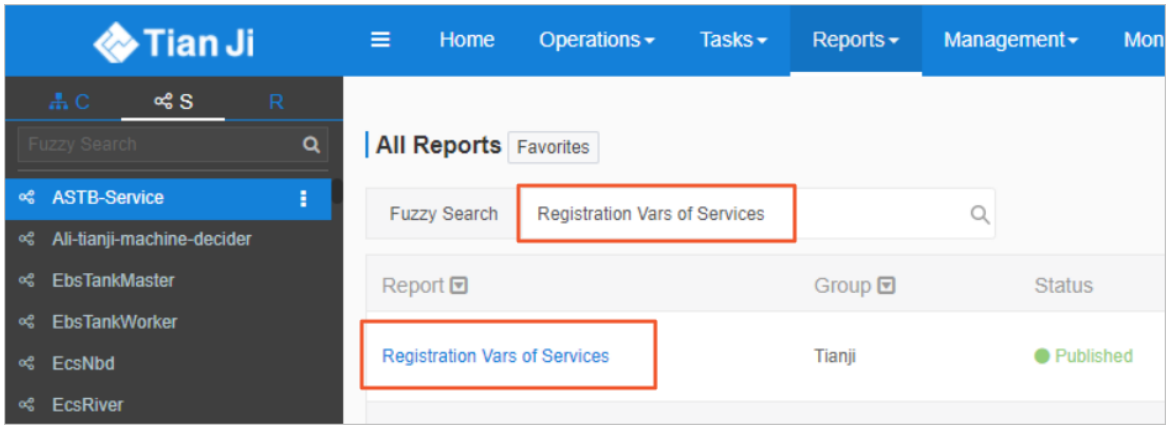
4. Then, you can view the service name, API operation name, and API operation version.

13.1.1.1.2.3. Generate an endpoint for the ASAPI

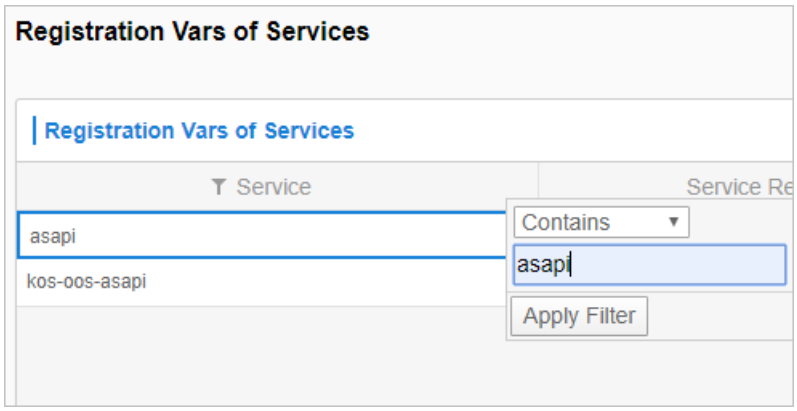
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

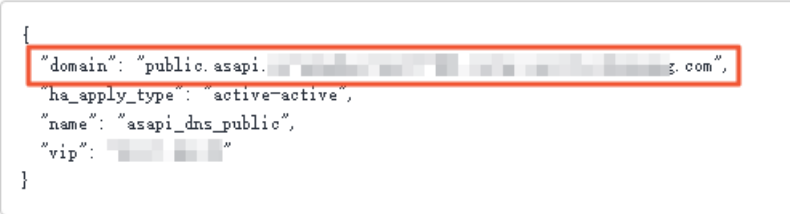
```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.
iii. In the left-side navigation pane, choose **Product Management** > **Products**.
iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.
   iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.
3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.
   In the **Application Parameter** message, obtain the value of the **domain** parameter.



4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

13.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

13.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

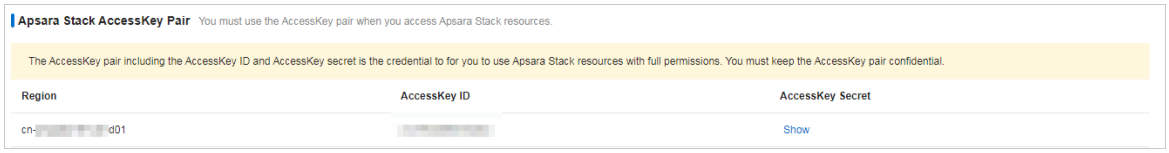
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

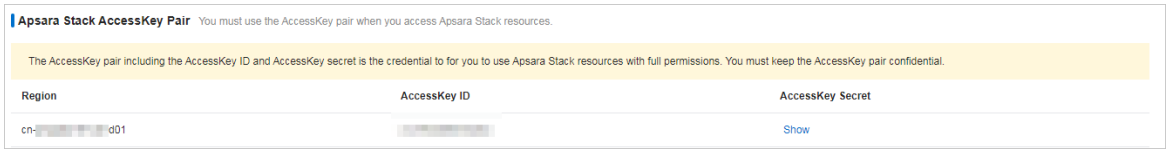
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

13.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



13.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

13.1.1.1.4. SDK description

13.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

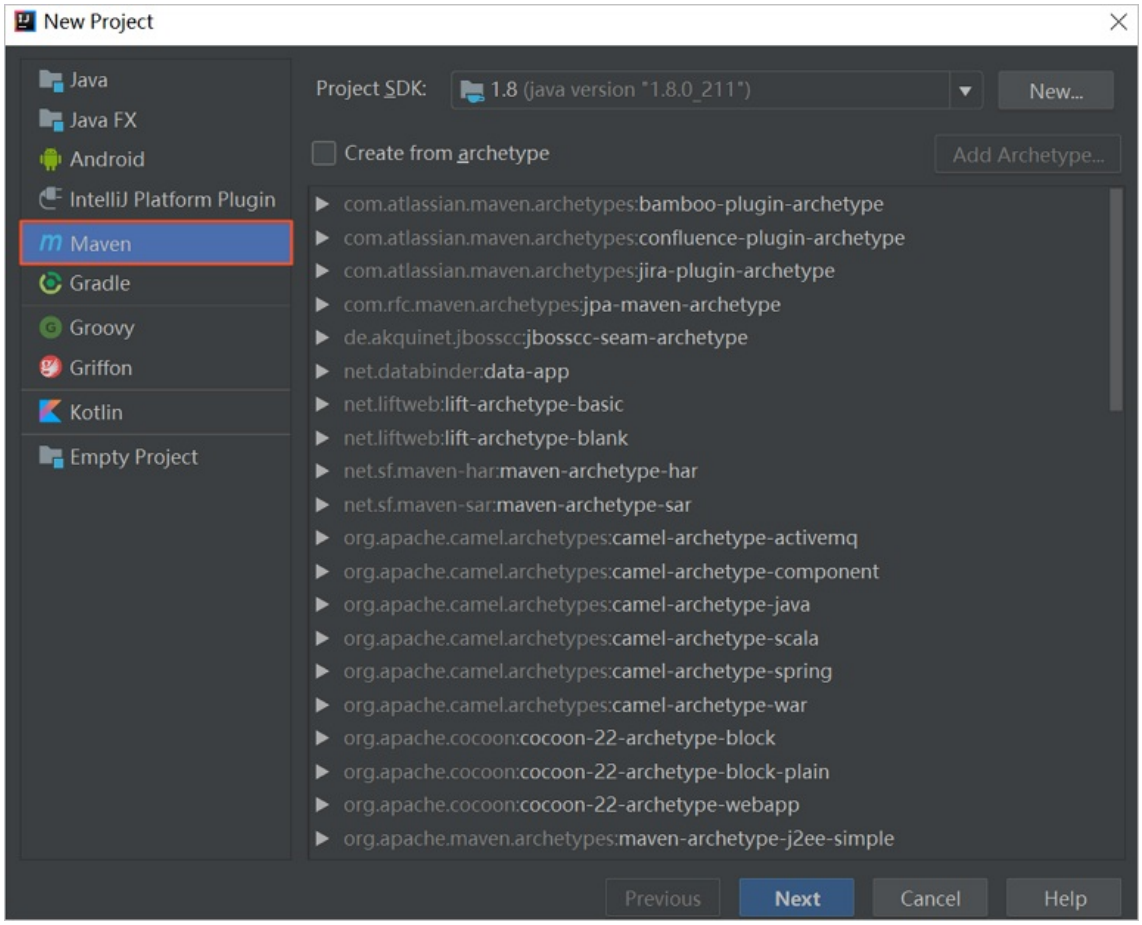
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

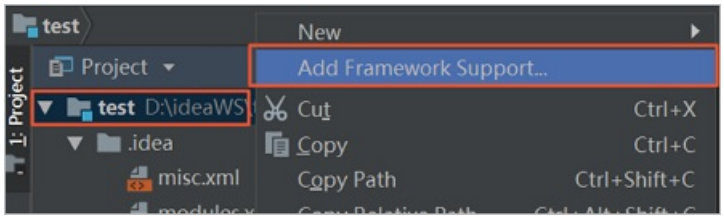
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

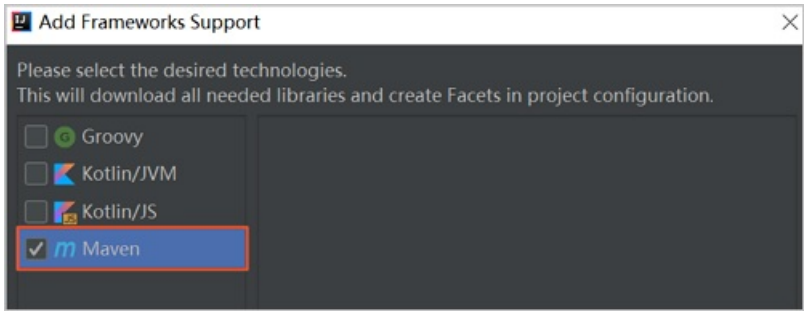
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



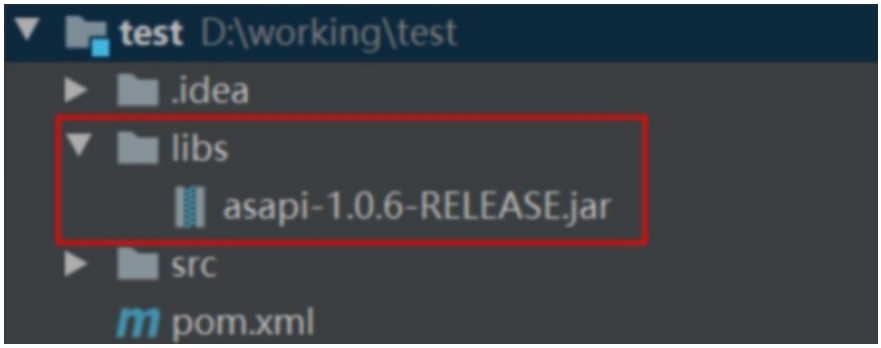
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



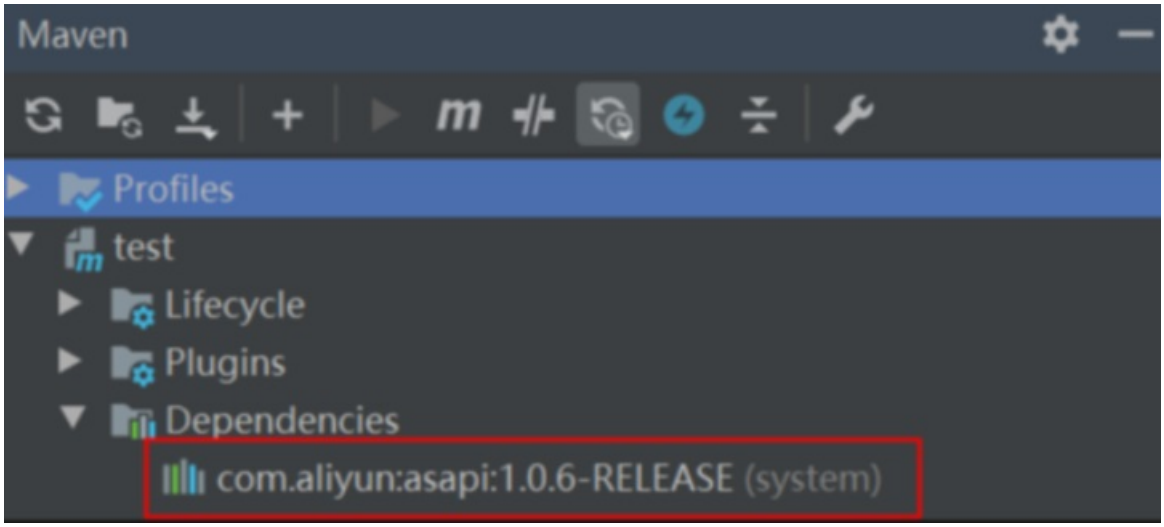
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

13.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

13.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

13.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

Notice

If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

13.1.1.1.5. HTTP requests

13.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

13.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

13.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

13.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

13.1.2. API Reference

13.1.2.1. List of operations by function

The following tables describe the API operations available for use in Data Management (DMS).

User management

API	Description
RegisterUser	Adds a user.
DisableUser	Disables a user.
EnableUser	Enables a user.
UpdateUser	Updates the information about a user.
DeleteUser	Deletes a user.
ListUsers	Queries the details about users.
ListUserTenants	Queries tenants.
GetUserActiveTenant	Queries the details about a tenant.
GetUser	Queries the details about a user.

Instance management

API	Description
RegisterInstance	Adds a database instance.
ListInstances	Queries the details about instances.
GetInstance	Queries the details about an instance.
UpdateInstance	Updates the information about an instance and checks the connectivity of the instance.
DeleteInstance	Deletes instances that are managed by DMS.

Operation logs

API	Description
GetOpLog	Queries the details about operation logs that are generated in a specified period of time.

Approval processes

API	Description
ListWorkFlowTemplates	Queries approval templates.
ListWorkFlowNodes	Queries approval nodes.

Metadata of databases and tables

API	Description
SearchDatabase	Queries the details about a database.
SearchTable	Queries the details about a table.
ListDatabases	Queries the details about databases in an instance.
ListLogicDatabases	Queries the details about logical databases.
ListTables	Queries the details about tables in a database.
ListLogicTables	Queries the details about logical tables in a logical database.
ListColumns	Queries the details about columns in a table.
ListIndexes	Queries the details about indexes in a table.
GetDatabase	Queries the details about a database.
GetLogicDatabase	Queries the details about a logic database.
GetMetaTableDetailInfo	Queries the details about fields and indexes in a table.
GetTableDBTopology	Queries the topology of a table.
GetMetaTableColumn	Queries the details about fields in a table.
SyncDatabaseMeta	Synchronizes the metadata of a database dictionary.
SyncInstanceMeta	Synchronizes the metadata of all database dictionaries in an instance.

Ticket operations

Category	API	Description
General	ApproveOrder	Reviews a ticket.
	CloseOrder	Closes a ticket.
	GetApprovalDetail	Queries the details about an approval process for a ticket.
	GetOrderBaseInfo	Queries the basic information about a ticket.
	ListOrders	Queries the details about tickets.
	SubmitOrderApproval	Submits a ticket for approval.
	CreateOrder	Creates a ticket.

Category	API	Description
Data change	ExecuteDataCorrect	Executes a ticket that is used to modify data.
	GetDataCorrectBackupFiles	Queries the download URL of an attachment that includes the backup files of data changes.
	GetDataCorrectOrderDetail	Queries the details about a ticket that is used to modify data.
Schema design	CreatePublishGroupTask	Executes a ticket that is used to modify the schema design of a database.
Data export	ExecuteDataExport	Executes a ticket that is used to export data.
	GetDataExportDownloadURL	Queries the download URL of an attachment that includes the exported data.
	GetDataExportOrderDetail	Queries the details about a ticket that is used to export data.

Permission management

API	Description
RevokeUserPermission	Revokes the permissions of a user.
ListDatabaseUserPermssions	Queries the details about user permissions on the resources of a database.
SetOwners	Sets the owners of a database or table.
ListUserPermissions	Queries the permissions of a user on databases and tables.
GrantUserPermission	Grants a user the permissions on a database or table.

Security management

API	Description
ListSensitiveColumns	Queries sensitive columns.
ListSensitiveColumnsDetail	Queries the details about sensitive columns.

Data query

API	Description
ExecuteScript	Executes an SQL script.

13.1.2.2. User management

13.1.2.2.1. RegisterUser

Adds a user to your enterprise.

The **administrator** of Data Management (DMS) Enterprise can call this operation to add users to DMS Enterprise. To check the users that assume the administrator role, perform the following steps: Log on to the DMS Enterprise console and choose System Management > User Management.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RegisterUser	The operation that you want to perform. Set the value to **RegisterUser**.
Tid	Long	Yes	-1	The ID of the tenant.
Uid	String	Yes	12345678	The ID of the Apsara Stack tenant account of the user that you want to add.
UserNick	String	No	dmstest	The name of the user.
RoleNames	String	No	USER,DBA	The roles that the user assumes. Valid values: • **USER**: a common user • **DBA**: a database administrator (DBA) • **ADMIN**: an administrator • **SECURITY_ADMIN**: a security administrator **Note** Default value: USER. You can specify one or more roles for the user. Separate multiple roles with commas (,).
Mobile	String	No	130000000xx	The contact number of the user.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	403	The returned error code.
ErrorMessage	String	The specified user already exists.	The returned error message.
RequestId	String	34E01EDD-6A16-4CF0-9541-C644D1BE01AA	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RegisterUser
&Tid=-1
&Uid=12345678
&UserNick=dmstest
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RegisterUserResponse>
      <RequestId>ADE24A7C-DB8B-4D32-94AD-E50E3B921197</RequestId>
      <Success>true</Success>
</RegisterUserResponse>
```

`JSON` format

```
{
    "RequestId": "34E01EDD-6A16-4CF0-9541-C644D1BE01AA",
    "Success": true
}
```

13.1.2.2.2. DisableUser

Disables an Apsara Stack tenant account.

This operation is related to the disable user feature of Data Management (DMS). To use this feature, perform the following steps: Log on to the DMS console, choose System Management > User Management. The administrator of DMS Enterprise can call this operation to disable an Apsara Stack tenant account that is temporarily not used in DMS Enterprise. After an Apsara Stack tenant account is disabled, the permissions that are granted to the Apsara Stack tenant account are revoked. The data owner configurations and database administrator (DBA) configurations are also disabled.

> **Note** This operation only stops an Apsara Stack tenant account from logging on to your DMS Enterprise console. The Apsara Stack tenant account is not disabled After an Apsara Stack tenant account is disabled, you cannot use the account to log on to your DMS Enterprise console until the account is enabled again. However, the disabled account still exists in DMS Enterprise.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DisableUser	The operation that you want to perform. Set the value to **DisableUser**.
Tid	Long	Yes	-1	The ID of the tenant.
Uid	String	Yes	12345	The ID of the Apsara Stack tenant account.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	403	The error code that is returned.
ErrorMessage	String	The specified user not exists.	The error message that is returned.
RequestId	String	34E01EDD-6A16-4CF0-9541-C644D1BE01AA	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeds.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DisableUser
&Tid=-1
&Uid=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DisableUserResponse>
    <RequestId>ADE24A7C-DB8B-4D32-94AD-E50E3B921197</RequestId>
    <Success>true</Success>
</DisableUserResponse>
```

`JSON` format

```
{
    "RequestId":"34E01EDD-6A16-4CF0-9541-C644D1BE01AA",
    "Success":true
}
```

13.1.2.2.3. EnableUser

Enables a disabled Apsara Stack tenant account.

This operation is related to the enable user feature of Data Management (DMS) Enterprise. To use this feature, perform the following steps: Log on to the DMS Enterprise console, choose System Management > User Management. The administrator of DMS Enterprise can call this operation to enable an Apsara Stack tenant account that is disabled in DMS Enterprise. After an Apsara Stack tenant account is enabled, you can use the account to log on to the DMS Enterprise console and perform the required operations.

Note This operation only removes the limit of a disabled Apsara Stack tenant account that cannot be used to log on to the DMS Enterprise console. Other operations that can be performed by the Apsara Stack tenant account are not affected.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EnableUser	The operation that you want to perform. Set the value to **EnableUser**.
Tid	Long	Yes	-1	The ID of the tenant.
Uid	String	Yes	12345	The ID of the Apsara Stack tenant account.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	403	The returned error code.
ErrorMessage	String	The specified user not exists.	The returned error message.
RequestId	String	34E01EDD-6A16-4CF0-9541-C644D1BE01AA	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=EnableUser
&Tid=-1
&Uid=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<EnableUserResponse>
    <RequestId>ADE24A7C-DB8B-4D32-94AD-E50E3B921197</RequestId>
    <Success>true</Success>
</EnableUserResponse>
```

`JSON` format

```
{
    "RequestId": "34E01EDD-6A16-4CF0-9541-C644D1BE01AA",
    "Success": true
}
```

13.1.2.2.4. UpdateUser

Updates the information of a user.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateUser	The operation that you want to perform. Set the value to **UpdateUser**.
Tid	Long	Yes	-1	The ID of the tenant.
Uid	Long	Yes	123456789	The ID of the user.
UserNick	String	No	test	The name of the user.
RoleNames	String	No	ADMIN,DBA	The roles that the user assumes. For more information about the valid values, see the **RegisterUser** operation.
Mobile	String	No	188xxxxxxxx	The DingTalk ID or mobile number of the user.
MaxExecuteCount	Long	No	1000	The maximum number of queries that can be performed each day.
MaxResultCount	Long	No	1000	The maximum number of rows that can be queried each day.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	E9BEBF41-4F69-4605-A5D5-A67955173941	The ID of the request.
Success	Boolean	false	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UpdateUser
&Tid=-1
&Uid=123456789
&UserNick=test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>E9BEBF41-4F69-4605-A5D5-A67955173941</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "E9BEBF41-4F69-4605-A5D5-A67955173941",
  "Success": true
}
```

13.1.2.2.5. DeleteUser

Deletes an Apsara Stack tenant account.

This operation is related to the delete user feature of Data Management (DMS). To use this feature, perform the following steps: Log on to the DMS console, choose System Management > User Management. The administrator of DMS Enterprise can call this operation to delete an Apsara Stack tenant account that is no longer used in DMS Enterprise. After an Apsara Stack tenant account is deleted, the permissions that are granted to the Apsara Stack tenant account are revoked. The data owner configurations and database administrator (DBA) configurations are disabled.

Note This operation only removes the relationship between an Apsara Stack tenant account and your DMS Enterprise. The Apsara Stack tenant account is not deleted. After you delete an Apsara Stack tenant account, you cannot use this account to log on to DMS Enterprise until the account is recreated.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteUser	The operation that you want to perform. Set the value to **DeleteUser**.
Tid	Long	Yes	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description
Uid	String	Yes	12345	The ID of the Apsara Stack tenant account.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	403	The error code that is returned.
ErrorMessage	String	The specified user not exists.	The error message that is returned.
RequestId	String	34E01EDD-6A16-4CF0-9541-C644D1BE01AA	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeds.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteUser
&Tid=-1
&Uid=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteUserResponse>
    <RequestId>ADE24A7C-DB8B-4D32-94AD-E50E3B921197</RequestId>
    <Success>true</Success>
</DeleteUserResponse>
```

`JSON` format

```
{
    "RequestId":"34E01EDD-6A16-4CF0-9541-C644D1BE01AA",
    "Success":true
}
```

13.1.2.2.6. ListUsers

Queries the details about users.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListUsers	The operation that you want to perform. Set the value to **ListUsers**.
Tid	Long	Yes	-1	The ID of the tenant.
Role	String	No	DBA	The role of users. For more information, see the description of the **RegisterUser** operation.
UserState	String	No	NORMAL	The status of users. Valid values: • NORMAL: Users are normal. • DISABLE: Users are disabled. • DELETE: Uses are deleted.
SearchKey	String	No	test	The keyword that is used to search for users.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	50	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.

Parameter	Type	Example	Description
RequestId	String	98D35416-2B92-4CE5-8FD2-B1E61E165536	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	1	The total number of entries that are returned.
UserList	Array of User		The details about users.
User			
CurExecuteCount	Long	0	The number of queries that are performed on the current day.
CurResultCount	Long	0	The number of rows that are queried on the current day.
LastLoginTime	String	2020-02-02 00:00:00	The last logon time.
MaxExecuteCount	Long	1000	The maximum number of queries that can be performed on the current day.
MaxResultCount	Long	1000	The maximum number of rows that can be queried on the current day.
Mobile	String	188xxxxx	The DingTalk ID or mobile phone number of the user.
NickName	String	test	The name of the user.
ParentUid	String	143214352	The ID of the parent Apsara Stack tenant account of the user.
RoleIdList	List	1	The IDs of roles.
RoleNameList	List	ADMIN	The names of roles.

Parameter	Type	Example	Description
State	String	NORMAL	The status of the user.
Uid	String	14324321533	The ID of the Apsara Stack tenant account of the user.
UserId	String	1	The ID of the user.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListUsers
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UserList>
    <User>
        <RoleIdList>
            <RoleIds>3</RoleIds>
            <RoleIds>1</RoleIds>
        </RoleIdList>
        <State>NORMAL</State>
        <RoleNameList>
            <RoleNames>ADMIN</RoleNames>
            <RoleNames>USER</RoleNames>
        </RoleNameList>
        <NickName>xxx</NickName>
        <UserId>2</UserId>
        <Uid>111</Uid>
    </User>
    <User>
        <RoleIdList>
            <RoleIds>1</RoleIds>
            <RoleIds>3</RoleIds>
        </RoleIdList>
        <State>NORMAL</State>
        <RoleNameList>
            <RoleNames>USER</RoleNames>
            <RoleNames>ADMIN</RoleNames>
        </RoleNameList>
        <NickName>xxx[RAM user]</NickName>
        <ParentUid>111</ParentUid>
        <UserId>1</UserId>
        <Uid>111</Uid>
    </User>
</UserList>
<TotalCount>2</TotalCount>
<RequestId>2D346B20-BF4A-4C96-8295-DE8EB9BF5B90</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "UserList": {
    "User": [
      {
        "RoleIdList": {
          "RoleIds": [
            3,
            1
          ]
        },
        "State": "NORMAL",
        "RoleNameList": {
          "RoleNames": [
            "ADMIN",
            "USER"
          ]
        },
        "NickName": "xxx",
        "UserId": 2,
        "Uid": "111"
      },
      {
        "RoleIdList": {
          "RoleIds": [
            1,
            3
          ]
        },
        "State": "NORMAL",
        "RoleNameList": {
          "RoleNames": [
            "USER",
            "ADMIN"
          ]
        },
        "NickName": "xxx[RAM user]"
        "ParentUid": "111",
        "UserId": 1,
        "Uid": "111"
      }
    ]
  },
  "TotalCount": 2,
  "RequestId": "2D346B20-BF4A-4C96-8295-DE8EB9BF5B90",
  "Success": true
}
```


13.1.2.2.7. ListUserTenants

Queries tenants.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListUserTenants	The operation that you want to perform. Set the value to **ListUserTenants**.
RegionId	String	Yes	cn-hangzhou	The ID of the region where DMS resides. This parameter is used to call the operation. **Note** Set this parameter to the ID of the region that is in proximity to your applications.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	CA1F4A4D-EE49-472F-8DF9-F537101E263A	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
TenantList	Array of Tenant		The tenants.
Status	String	ACTIVE	The status of the tenant. Valid values: • ACTIVE: active. All users belong to this tenant. • IN_ACTIVE: inactive
TenantName	String	test	The name of the tenant.
Tid	Long	-1	The ID of the tenant.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListUserTenants
&RegionId=cn-hangzhou
&<Common Request Parameters>
```

Sample success responses

`XML` format

```
<RequestId>CA1F4A4D-EE49-472F-8DF9-F537101E263A</RequestId>
<TenantList>
    <Status>ACTIVE</Status>
    <TenantName>test1</TenantName>
    <Tid>-1</Tid>
</TenantList>
<TenantList>
    <Status>IN_ACTIVE</Status>
    <TenantName>test2</TenantName>
    <Tid>-2</Tid>
</TenantList>
<TenantList>
    <Status>IN_ACTIVE</Status>
    <TenantName>tes</TenantName>
    <Tid>-3</Tid>
</TenantList>
```

`JSON` format

```
{
  "RequestId": "CA1F4A4D-EE49-472F-8DF9-F537101E263A",
  "TenantList": [
    {
      "Status": "ACTIVE",
      "TenantName": "test1",
      "Tid": -1
    },
    {
      "Status": "IN_ACTIVE",
      "TenantName": "test2",
      "Tid": -2
    },
    {
      "Status": "IN_ACTIVE",
      "TenantName": "tes",
      "Tid": -3
    }
  ]
}
```

13.1.2.2.8. GetUserActiveTenant

Queries the details about a tenant.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetUserActiveTenant	The operation that you want to perform. Set the value to **GetUserActiveTenant**.
RegionId	String	No	cn-hangzhou	The ID of the region where Data Management (DMS) resides. **Note** Set this parameter to the ID of the region that is in proximity to your applications.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	E20EAB9F-A3DB-42EC-BD0C-102A886340F5	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
Tenant	Struct		The details about the tenant.
Status	String	ACTIVE	The status of the tenant. Valid values: • ACTIVE: active • IN_ACTIVE: inactive
TenantName	String	test	The name of the tenant.
Tid	Long	-1	The ID of the tenant.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetUserActiveTenant
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Tenant>
    <Status>ACTIVE</Status>
    <TenantName>test</TenantName>
    <Tid>-1</Tid>
</Tenant>
<RequestId>E20EAB9F-A3DB-42EC-BD0C-102A886340F5</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "Tenant": {
    "Status": "ACTIVE",
    "TenantName": "test",
    "Tid": -1
  },
  "RequestId": "E20EAB9F-A3DB-42EC-BD0C-102A886340F5",
  "Success": true
}
```

13.1.2.2.9. GetUser

Queries the details of a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetUser	The operation that you want to perform. Set the value to **GetUser**.
Tid	Long	Yes	-1	The ID of the tenant.
Uid	String	No	123344235	The ID of the Apsara Stack tenant account of the user.
UserId	String	No	1343	The ID of the user.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	CFF30064-5985-4ACB-B3F9-9557596913C8	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
User	Struct		The information about the user.
CurExecuteCount	Long	0	The number of queries that were issued on the current day.
CurResultCount	Long	0	The number of rows that were queried on the current day.
LastLoginTime	String	2020-02-02 00:00:00	The last logon time.
MaxExecuteCount	Long	1000	The maximum number of queries that can be performed on the current day.
MaxResultCount	Long	1000	The maximum number of rows that can be queried on the current day.
Mobile	String	138xxxxxxxx	The mobile phone number of the user.
NickName	String	nickName	The name of the user.
ParentUid	Long	12345352	The ID of the Apsara Stack tenant account.
RoleIdList	List	1	The IDs of the roles.
RoleNameList	List	Common user	The names of the roles.

Parameter	Type	Example	Description
State	String	NORMAL	The status of the user.
Uid	String	1243215435	The ID of the Apsara Stack tenant account of the user.
UserId	String	122	The ID of the user.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetUser
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<User>
    <RoleIdList>
        <RoleIds>1</RoleIds>
        <RoleIds>4</RoleIds>
        <RoleIds>3</RoleIds>
        <RoleIds>2</RoleIds>
    </RoleIdList>
    <State>NORMAL</State>
    <RoleNameList>
        <RoleNames>Common user</RoleNames>
        <RoleNames>Security administrator</RoleNames>
        <AccountDescription>Administrator</AccountDescription>
        <RoleNames>DBA</RoleNames>
    </RoleNameList>
    <NickName>xxx</NickName>
    <ParentUid>114324325</ParentUid>
    <UserId>432143</UserId>
    <Uid>41234234324</Uid>
</User>
<RequestId>CFF30064-5985-4ACB-B3F9-9557596913C8</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "User": {
    "RoleIdList": {
      "RoleIds": [
        1,
        4,
        3,
        2
      ]
    },
    "State": "NORMAL",
    "RoleNameList": {
      "RoleNames": [
        "Common user",
        "Security administrator",
        "Administrator",
        "DBA"
      ]
    },
    "NickName": "xxx",
    "ParentUid": "114324325",
    "UserId": 432143,
    "Uid": "41234234324"
  },
  "RequestId": "CFF30064-5985-4ACB-B3F9-9557596913C8",
  "Success": true
}
```


13.1.2.3. Instance management

13.1.2.3.1. RegisterInstance

Adds a database instance to your enterprise.

The **administrator and database administrator (DBA)** of Data Management (DMS) Enterprise can call this operation to add database instances to DMS Enterprise. To check users who assume the administrator or DBA role, perform the following steps: Log on to the DMS Enterprise console and choose System Management > User Management.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RegisterInstance	The operation that you want to perform. Set the value to **RegisterInstance**.
Tid	Long	Yes	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description
InstanceType	String	Yes	MySQL	The type of the database instance. Valid values: • MySQL • SQLServer • PostgreSQL • Oracle • DRDS • OceanBase • Mongo • Redis
InstanceSource	String	Yes	RDS	The source of the database instance. Valid values: • **PUBLIC_OWN**: a self-managed database that is created in the public network. • **RDS**: an ApsaraDB RDS instance. • **ECS_OWN**: a self-managed database that is created on an Elastic Compute Service (ECS) instance. • **VPC_IDC**: a self-managed database that is created in the Internet data center (IDC) of a virtual private cloud (VPC).
NetworkType	String	Yes	VPC	The type of the network.
EnvType	String	Yes	product	The type of the environment. Valid values: • product: production environment • dev: development environment • pre: staging environment • test: test environment • sit: SIT environment • uat: UAT environment • pet: stress testing environment • stag: STAG environment
Host	String	Yes	dmstest.rds.aliyun.com	The host address of the required database.

Parameter	Type	Required	Example	Description
Port	Integer	Yes	3306	The number of the port that is used to connect to the required database.
DatabaseUser	String	Yes	dmstest	The username of the account that is used to log on to the database.
DatabasePassword	String	Yes	password	The password of the account.
InstanceAlias	String	Yes	Test instance	The name of the instance. Specify a name that can help you identify and locate the instance.
DbaUid	Long	Yes	12345678	The ID of the Apsara Stack tenant account for the database administrator (DBA) of the instance.
SafeRule	String	Yes	Test	The name of the security rule that belongs to your enterprise.
QueryTimeout	Integer	Yes	60	The timeout period for the query. Unit: seconds.
ExportTimeout	Integer	Yes	600	The timeout period for the export. Unit: seconds.
EcsInstanceId	String	No	i-xxxxxxxxx	The ID of the ECS instance. **Note** This parameter is required if the **InstanceSource** parameter is set to ECS_OWN.
VpcId	String	No	vpc-xxxxxxxxxxxxxxxxxxxxx	The ID of the VPC. **Note** This parameter is required if the **InstanceSource** parameter is set to VPC_IDC.

Parameter	Type	Required	Example	Description
EcsRegion	String	No	cn-hangzhou	The region where the instance resides. **Note** This parameter is required if the **InstanceSource** parameter is set to RDS, ECS_OWN, or VPC_IDC.
Sid	String	No	dmstest	The system identifier (SID) of the database. **Note** This parameter is required if the **InstanceType** parameter is set to PostgreSQL or Oracle.
DataLinkName	String	No	dblink_test	The name of the data link for cross-database queries.
DdlOnline	Integer	No	2	Specifies whether to enable the online data description language (DDL) service. This service is available only for the MySQL and PolarDB databases. • 0: The service is disabled. • 1: The native online DDL service takes precedence. • 2: Data changes for the schema of lock-free DMS tables take precedence.
UseDsql	Integer	No	1	Specifies whether to enable the cross-database query feature for the instance. Valid values: • 0: Disable the feature. • 1: Enable the feature.
SkipTest	Boolean	No	true	Specifies whether to skip the connection test. Valid values: • **true**: Skip the connection test. • **false**: Perform the connection test.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	404	The returned error code.
ErrorMessage	String	The specified instance already exists.	The returned error message.
RequestId	String	F4E2A94B-604F-43FF-93E7-F4EE3DCF412E	The ID of the request. Each request has a unique ID.
Success	Boolean	true	• **true**: The request succeeded. • **false**: The request failed.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RegisterInstance
&Tid=-1
&InstanceType=MySQL
&InstanceSource=RDS
&NetworkType=VPC
&EnvType=product
&Host=dmstest.rds.aliyun.com
&Port=3306
&DatabaseUser=dmstest
&DatabasePassword=password
&InstanceAlias=Test instance
&DbaUid=12345678
&SafeRule=Test
&QueryTimeout=60
&ExportTimeout=600
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RegisterInstanceResponse>
      <RequestId>D4F02899-CE79-4DFD-9893-5217DA70B363</RequestId>
      <Success>true</Success>
</RegisterInstanceResponse>
```

`JSON` format

```
{
    "RequestId": "F4E2A94B-604F-43FF-93E7-F4EE3DCF412E",
    "Success": true
}
```

SDK for Python example

The following example shows how to add an instance that resides in VPC.

```
#coding=utf-8
from aliyunsdkcore.client import AcsClient
from aliyunsdkdms_enterprise.request.v20181101.RegisterInstanceRequest import RegisterInsta
nceRequest
client = AcsClient(
    "<your-access-key-id>",
    "<your-access-key-secret>",
    "<your-region-id>"
)
# Example
request = RegisterInstanceRequest()
# The ID of the tenant.
request.set_Tid(1)
# The endpoint of the instance.
request.set_Host("192.168.16.113")
# The number of the port that is used to connect to the instance.
request.set_Port(3314)
# The type of the database, for example, MySQL.
request.set_InstanceType("MySQL")
# The source of the instance, for example, VPC_IDC.
request.set_InstanceSource("VPC_IDC")
# The network type, for example, VPC.
request.set_NetworkType("VPC")
request.set_EnvType("PRODUCT")
# request.set_EcsInstanceId()
# The ID of the VPC to which the instance belongs.
request.set_VpcId("VPC ID of the instance")
# The region ID of the ECS instance in which the database resides, for example, cn-hangzhou
.
request.set_EcsRegion("Region ID of the ECS instance")
# request.set_Sid();
# The username of the account that is used to log on to the database.
request.set_DatabaseUser("Logon username of the database")
# The password of the account.
request.set_DatabasePassword("Logon password of the database")
# The alias of the instance. Specify an alias that helps you identify the related instance
in DMS Enterprise.
request.set_InstanceAlias("Alias of the instance")
# The ID of the Apsara Stack tenant account for the database administrator (DBA) of the ins
tance. The user must first be added to DMS Enterprise by using the console or the required
API operation.
request.set_DbaUid(-1)
request.set_SafeRule("Name of the security rule that is configured in DMS Enterprise")
request.set_QueryTimeout(60)
request.set_ExportTimeout(600)
response = client.do_action_with_exception(request)
print response
```

13.1.2.3.2. ListInstances

Queries the details about instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListInstances	The operation that you want to perform. Set the value to **ListInstances**.
Tid	Long	No	-1	The ID of the tenant.
SearchKey	String	No	test	The keyword that is used to search for instances.
DbType	String	No	MySQL	The type of databases.
EnvType	String	No	product	The type of the environment to which instances belong.
InstanceSource	String	No	RDS	The source of instances.
NetType	String	No	VPC	The network environment of instances. For more information, see the description of the **RegisterInstance** operation.
InstanceState	String	No	NORMAL	The status of instances. Valid values: • NORMAL: Instances functions as expected. • DISABLE: Instances are disabled.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	50	The number of entries to return on each page. Maximum value: 100.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
InstanceList	Array of Instance		The instances.
Instance			
DataLinkName	String	dblink_test	The name of the data link for the instance.
DatabasePassword	String	******	The password of the account that is used to log on to the database.
DatabaseUser	String	dbUser	The username of the account that is used to log on to the database.
DbaId	String	1	The ID of the database administrator (DBA) for the instance.
DbaNickName	String	dbaName	The name of the DBA.
DdlOnline	Integer	1	The configuration of the online data description language (DDL) feature for the instance.
EcsInstanceId	String	xxx	The ID of the ECS instance.
EcsRegion	String	cn-hangzhou	The region to which the ECS instance belongs.
EnvType	String	product	The type of the environment to which the instance belongs.
ExportTimeout	Integer	600	The timeout period to export the instance.
Host	String	xxx.xxx.xxx.xxx	The endpoint of the instance.
InstanceAlias	String	test	The alias of the instance.

Parameter	Type	Example	Description
InstanceId	String	1	The ID of the instance.
InstanceSource	String	RDS	The source of the instance.
InstanceType	String	mysql	The type of the database for the instance.
OwnerIdList	List	1	The IDs of the owners of the database.
OwnerNameList	List	11	The names of the owners of the database.
Port	Integer	3306	The number of the port that is used to connect to the instance.
QueryTimeout	Integer	60	The timeout period to query the instance.
SafeRuleId	String	1	The ID of the security rule for the instance.
Sid	String	test	The system identifier (SID) of the instance.
State	String	NORMAL	The status of the instance.
UseDsql	Integer	1	Indicates whether the cross-database query feature is enabled for the instance.
VpcId	String	xxx	The ID of the virtual private cloud (VPC) to which the instance belongs.
RequestId	String	B4B07137-F6AE-4756-8474-7F92BB6C4E04	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	0	The total number of entries that are returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListInstances
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>7</TotalCount>
<RequestId>98D35416-2B92-4CE5-8FD2-B1E61E165536</RequestId>
<Success>true</Success>
<InstanceList>
</InstanceList>
```

`JSON` format

```
{
  "TotalCount": 7,
  "RequestId": "98D35416-2B92-4CE5-8FD2-B1E61E165536",
  "Success": true,
  "InstanceList": {
    "Instance": [
    ]
  }
}
```

13.1.2.3.3. GetInstance

Queries the details about an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetInstance	The operation that you want to perform. Set the value to **GetInstance**.
Host	String	Yes	xxxx.mysql.rds.aliyuncs.com	The endpoint of the instance.
Port	Integer	Yes	3306	The number of the port that is used to connect to the instance.
Tid	Long	Yes	-1	The ID of the tenant.
Sid	String	No	test	The system identifier (SID) of the instance.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
Instance	Struct		The details about the instance.
DataLinkName	String	test	The name of the data link for the instance.
DatabasePassword	String	******	The logon password of the instance.
DatabaseUser	String	dbuser	The logon username of the instance.
DbaId	String	1	The ID of the database administrator (DBA) for the instance. You can call the ListUsers operation to obtain the ID.
DbaNickName	String	dbaname	The name of the DBA for the instance.
DdlOnline	Integer	1	Indicates whether the online data description language (DDL) service is enabled for the instance.
EcsInstanceId	String	xxx	The ID of the ECS instance.
EcsRegion	String	cn-hangzhou	The ID of the region in which the instance resides.
EnvType	String	test	The type of the environment to which the instance belongs.
ExportTimeout	Integer	600	The timeout period to export the instance.

Parameter	Type	Example	Description
Host	String	xxx.rwlb.rds.aliyuncs.com	The endpoint of the instance.
InstanceAlias	String	test	The alias of the instance.
InstanceId	String	1	The ID of the instance.
InstanceSource	String	RDS	The source of the instance.
InstanceType	String	polardb	The database type of the instance.
OwnerIdList	List	88656	The IDs of the owners of the instance.
OwnerNameList	List	xxx	The names of the owners of the instance.
Port	Integer	3306	The number of the port that is used to connect to the instance.
QueryTimeout	Integer	60	The timeout period to query the instance.
SafeRuleId	String	1	The ID of the security rule of the instance.
Sid	String	test	The SID of the instance.
State	String	NORMAL	The status of the instance.
UseDsql	Integer	1	Indicates whether the cross-database query feature is enabled for the instance.
VpcId	String	xxx	The ID of the VPC to which the instance belongs.
RequestId	String	8BE73E78-76E2-46AA-970D-A4579A16CD4A	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetInstance
&Host=xxxx.mysql.rds.aliyuncs.com
&Port=3306
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Instance>
    <SafeRuleId>1037</SafeRuleId>
    <UseDsql>1</UseDsql>
    <EcsInstanceId>pc-xxx</EcsInstanceId>
    <QueryTimeout>80</QueryTimeout>
    <Host>xxx.rwlb.rds.aliyuncs.com</Host>
    <InstanceAlias>test</InstanceAlias>
    <InstanceSource>RDS</InstanceSource>
    <InstanceId>24710</InstanceId>
    <DataLinkName>dblink_test</DataLinkName>
    <EnvType>dev</EnvType>
    <DdlOnline>0</DdlOnline>
    <VpcId>vpc-xxx</VpcId>
    <InstanceType>polardb</InstanceType>
    <DbaId>104442</DbaId>
    <Port>3306</Port>
    <DbaNickName>test[RAM user]</DbaNickName>
    <State>NORMAL</State>
    <DatabaseUser>dmstest</DatabaseUser>
    <DatabasePassword>******</DatabasePassword>
    <EcsRegion>cn-hangzhou</EcsRegion>
    <ExportTimeout>300</ExportTimeout>
</Instance>
<RequestId>8BE73E78-76E2-46AA-970D-A4579A16CD4A</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "Instance": {
    "SafeRuleId": 1037,
    "UseDsql": "1",
    "EcsInstanceId": "pc-xxx",
    "QueryTimeout": 80,
    "Host": "xxx.rwlb.rds.aliyuncs.com",
    "InstanceAlias": "test",
    "InstanceSource": "RDS",
    "InstanceId": 24710,
    "DataLinkName": "dblink_test",
    "EnvType": "dev",
    "DdlOnline": 0,
    "VpcId": "vpc-xxx",
    "InstanceType": "polardb",
    "DbaId": 104442,
    "Port": 3306,
    "DbaNickName": <DbaNickName>test[RAM user]</DbaNickName>
    "State": "NORMAL",
    "DatabaseUser": "dmstest",
    "DatabasePassword": "******",
    "EcsRegion": "cn-hangzhou",
    "ExportTimeout": 300
  },
  "RequestId": "8BE73E78-76E2-46AA-970D-A4579A16CD4A",
  "Success": true
}
```


13.1.2.3.4. UpdateInstance

Updates the information about a database instance and checks the connectivity of the instance.

Before you call this operation to update the information about an instance, we recommend that you call the GetInstance operation to obtain the complete information about the instance. Then, you can set the required parameters based on the information that you obtain.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateInstance	The operation that you want to perform. Set the value to **UpdateInstance**.
DatabasePassword	String	Yes	******	The password of the database account.

Parameter	Type	Required	Example	Description
DatabaseUser	String	Yes	dbuser	The username of the database account.
DbaId	String	Yes	1	The ID of the database administrator (DBA) for the instance. You can call the **ListUsers** operation to query the ID.
EnvType	String	Yes	test	The type of the environment to which the instance belongs.
ExportTimeout	Integer	Yes	600	The timeout period to export of the instance.
Host	String	Yes	xxxx.mysql.rds.aliyuncs.com	The endpoint of the instance.
InstanceAlias	String	Yes	test	The alias of the instance.
InstanceId	String	Yes	1	The ID of the instance. You can call the **GetInstance** operation to query the ID.
InstanceSource	String	Yes	RDS	The source of the instance. You can call the **RegisterInstance** operation to query the source.
InstanceType	String	Yes	MySQL	The type of the instance. You can call the **RegisterInstance** operation to query the type.
Port	Integer	Yes	3306	The port of the instance.
QueryTimeout	Integer	Yes	60	The timeout period to query the instance.
SafeRuleId	String	Yes	1	The ID of the security rule of the instance.
Tid	Long	Yes	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description
EcsInstanceId	String	No	xxx	The ID of the ECS instance.
VpcId	String	No	xxx	The ID of the VPC to which the instance belongs.
EcsRegion	String	No	cn-hangzhou	The ID of the region in which the instance resides.
Sid	String	No	xxx	The system identifier (SID) of the instance.
DataLinkName	String	No	datalink_test	The name of the data link for the instance.
DdlOnline	Integer	No	1	Specifies whether to enable the online data description language (DDL) service for the instance. For more information about the valid values, see the description of the **RegisterInstance** operation.
UseDsql	Integer	No	1	Specifies whether to enable the cross-database query feature for the instance.
SkipTest	Boolean	No	true	Specifies whether to skip the connectivity check. Valid values: • true: Skip the connectivity check. • false: Perform the connectivity check.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.

Parameter	Type	Example	Description
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	E9BEBF41-4F69-4605-A5D5-A67955173941	The ID of the request.
Success	Boolean	false	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UpdateInstance
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>E9BEBF41-4F69-4605-A5D5-A67955173941</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "E9BEBF41-4F69-4605-A5D5-A67955173941",
  "Success": true
}
```

13.1.2.3.5. DeleteInstance

Removes a database instance from Data Management (DMS) Enterprise.

This operation only removes a database instance from the DMS Enterprise console. The database instance is not disabled.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteInstance	The operation that you want to perform. Set the value to **DeleteInstance**.

Parameter	Type	Required	Example	Description
Host	String	Yes	xxx.mysql.rds.aliyuncs.com	The endpoint of the database instance to be removed.
Port	Integer	Yes	3306	The connection port of the database instance to be removed.
Tid	Long	Yes	-1	The ID of the tenant.
Sid	String	No	testSid	The SID of the database instance to be removed.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	B4B07137-F6AE-4756-8474-7F92BB6C4E04	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteInstance
&Host=xxx.mysql.rds.aliyuncs.com
&Port=3306
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>B4B07137-F6AE-4756-8474-7F92BB6C4E04</RequestId>
<ErrorCode>UnknownError</ErrorCode>
<ErrorMessage>UnknownError</ErrorMessage>
<Success>true</Success>
```

`JSON` format

```
{"RequestId":"B4B07137-F6AE-4756-8474-7F92BB6C4E04","ErrorCode":"UnknownError","ErrorMessage":"UnknownError","Success":"true"}
```

13.1.2.4. Operation logs

13.1.2.4.1. GetOpLog

Queries the details about operation logs that are generated in a specified period.

The **administrator** and **security administrator** roles of an account can all this operation. For more information about account roles, see User management.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetOpLog	The operation that you want to perform. Set the value to **GetOpLog**.
Tid	Long	Yes	-1	The ID of the tenant.
StartTime	String	Yes	2018-11-01 10:00:00	The start of the time range to query. The time must be specified in the yyyy-MM-ddTHH:mm:ssZ format.
EndTime	String	Yes	2018-11-01 11:00:00	The end of the time range to query. The time must be specified in the yyyy-MM-ddTHH:mm:ssZ format.
PageNumber	Integer	Yes	3	The number of the page to return. Pages start from page 1.
PageSize	Integer	Yes	30	The number of entries to return on each page. Valid values: • 30 • 50 • 100

Parameter	Type	Required	Example	Description
Module	String	No	PERMISSION	The function module that specifies the type of operation logs that you want to return. If you do not set this parameter, all operation logs that are generated in the specified time range are returned. Valid values: • **PERMISSION**: permissions • **OWNER**: data owner • **SQL_CONSOLE**: data query • **SQL_CONSOLE_EXPORT**: query result export • **DATA_CHANGE**: data change • **DATA_EXPORT**: data export • **SQL_REVIEW**: SQL review • **DT_SYNC**: database and table synchronization • **DT_DETAIL**: database and table details • **DB_TASK**: task management • **INSTANCE_MANAGE**: instance management • **USER_MANAGE**: user management • **SECURITY_RULE**: security rules • **CONFIG_MANAGE**: configuration management • **RESOURCE_AUTH**: resource authorization • **ACCESS_WHITE_IP**: access to IP whitelists
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	403	The returned error code.
ErrorMessage	String	The specified request parameter is invalid.	The error message that is returned.

Parameter	Type	Example	Description
OpLogDetails	Array of OpLogDetail		The details about operation logs.
OpLogDetail			
Database	String	dmstest_prod_database@dmstest.rds... [Test instance]	The endpoint of the database. A value is returned for this parameter only when the database type is set to **LocalInstance**. Note
Module	String	PERMISSION	The function module.
OpContent	String	Apply for permissions	The details about the operation.
OpTime	String	2018-11-01 10:00:00	The time when the operation was performed.
OrderId	Long	1	The ID of the ticket or task. Note
UserId	Long	12345678	The ID of the Apsara Stack tenant account.
UserNick	String	dmstest	The name of the user.
RequestId	String	47D56208-DB1D-4FD3-BE32-300E43185488	The ID of the request. Each request has a unique ID.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	22	The total number of operation logs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetOpLog
&Tid=-1
&StartTime=2018-11-01 10:00:00
&EndTime=2018-11-01 11:00:00
&PageNumber=3
&PageSize=30
&<Common request parameters>
```

Sample success response

`XML` format

```
<OpLogDetails>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS s
tore_capacity FROM information_schema.tables WHERE table_type = &amp;#39;BASE TABLE&amp;#39
; AND `table_schema` = &amp;#39;dmstest_database&amp;#39; AND `table_name` = &amp;#39;multi
_db_multi_tbl&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 20:04:10</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS s
tore_capacity FROM information_schema.tables WHERE table_type = &amp;#39;BASE TABLE&amp;#39
; AND `table_schema` = &amp;#39;dmstest_database&amp;#39; AND `table_name` = &amp;#39;multi
_db_multi_tbl&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 20:04:06</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 24.)show topology FROM multi_db_multi_tbl</
OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 20:03:55</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS s
tore_capacity FROM information_schema.tables WHERE table_type = &amp;#39;BASE TABLE&amp;#39
; AND `table_schema` = &amp;#39;dmstest_database&amp;#39; AND `table_name` = &amp;#39;user_
log3&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 20:02:59</OpTime>
        <Module>Data query</Module>
```

```
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS s
tore_capacity FROM information_schema.tables WHERE table_type = &amp;#39;BASE TABLE&amp;#39
; AND `table_schema` = &amp;#39;dmstest_database&amp;#39; AND `table_name` = &amp;#39;user_
log3&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 20:02:49</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)show CREATE TABLE user_log3</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:34:05</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 9.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:33:54</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5486.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:26:57</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5485.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:23:55</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5484.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:23:30</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
```

```
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5483.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:23:11</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)show CREATE TABLE multi_db_single_tbl</O
pContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:22:30</OpTime>
        <Module>SQL_CONSOLE</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 2.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:22:15</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 2.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:19:31</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5482.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:19:25</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 1.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:18:57</OpTime>
        <Module>Data query</Module>
```

```
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>Creates an SQL task. Task ID: 5481.</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:18:46</OpTime>
        <Module>Task management</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:04:13</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 14:04:08</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_sch
ema.tables WHERE TABLE_TYPE = &amp;#39;BASE TABLE&amp;#39; AND table_schema = &amp;#39;dmst
est_database&amp;#39;</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 12:11:41</OpTime>
        <Module>Data query</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>The administrator or DBA changes the owner of a database. Database name:
dmstest_database@dmstest.rds...(test)</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
        <OpTime>2018-11-22 12:11:14</OpTime>
        <Module>Data owner</Module>
    </OpLogDetail>
    <OpLogDetail>
        <OpContent>The administrator or DBA changes the owner of a database. Database name:
dmstest_prod_database@dmstest.rds...(test)</OpContent>
        <UserNick>dmstest</UserNick>
        <Database>dmstest_prod_database@dmstest.rds...(test)</Database>
        <UserId>12345678</UserId>
```

```
        <OpTime>2018-11-22 12:11:07</OpTime>
        <Module>Data owner</Module>
    </OpLogDetail>
</OpLogDetails>
<TotalCount>22</TotalCount>
<RequestId>47D56208-DB1D-4FD3-BE32-300E43185488</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
 "OpLogDetails": {
  "OpLogDetail": [{
   "OpContent": "(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS sto
re_capacity FROM information_schema.tables WHERE table_type = &#39;BASE TABLE&#39; AND `tab
le_schema` = &#39;dmstest_database&#39; AND `table_name` = &#39;multi_db_multi_tbl&#39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 20:04:10",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS sto
re_capacity FROM information_schema.tables WHERE table_type = &#39;BASE TABLE&#39; AND `tab
le_schema` = &#39;dmstest_database&#39; AND `table_name` = &#39;multi_db_multi_tbl&#39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 20:04:06",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 24.)show topology FROM multi_db_multi_tbl",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 20:03:55",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS sto
re_capacity FROM information_schema.tables WHERE table_type = &#39;BASE TABLE&#39; AND `tab
le_schema` = &#39;dmstest_database&#39; AND `table_name` = &#39;user_log3&#39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 20:02:59",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 1.)SELECT (data_length + index_length) AS sto
re_capacity FROM information_schema.tables WHERE table_type = &#39;BASE TABLE&#39; AND `tab
le_schema` = &#39;dmstest_database&#39; AND `table_name` = &#39;user_log3&#39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 20:02:49",
```

```
    "Module": "Data query"
  }, {
    "OpContent": "(Successful. Number of rows: 1.)show CREATE TABLE user_log3",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:34:05",
    "Module": "Data query"
  }, {
    "OpContent": "(Successful. Number of rows: 9.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:33:54",
    "Module": "Data query"
  }, {
    "OpContent": "Creates an SQL task. Task ID: 5486.",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:26:57",
    "Module": "Task management"
  }, {
    "OpContent": "Creates an SQL task. Task ID: 5485.",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:23:55",
    "Module": "Task management"
  }, {
    "OpContent": "Creates an SQL task. Task ID: 5484.",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:23:30",
    "Module": "Task management"
  }, {
    "OpContent": "Creates an SQL task. Task ID: 5483.",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:23:11",
    "Module": "Task management"
  }, {
    "OpContent": "(Successful. Number of rows:1)show CREATE TABLE multi_db_single_tbl",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:22:30",
    "Module": "Data query"
  }, {
    "OpContent": "(Successful. Number of rows: 2.)SELECT `TABLE_NAME` FROM information_schem
```

```
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:22:15",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 2.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:19:31",
   "Module": "Data query"
  }, {
   "OpContent": "Creates an SQL task. Task ID: 5482.",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:19:25",
   "Module": "Task management"
  }, {
   "OpContent": "(Successful. Number of rows: 1.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:18:57",
   "Module": "Data query"
  }, {
   "OpContent": "Creates an SQL task. Task ID: 5481.",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:18:46",
   "Module": "Task management"
  }, {
   "OpContent": "(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
   "UserId": 12345678,
   "OpTime": "2018-11-22 14:04:13",
   "Module": "Data query"
  }, {
   "OpContent": "(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
   "UserNick": "dmstest",
   "Database": "dmstest_database@dmstest.rds...(test)",
```

```
    "UserId": 12345678,
    "OpTime": "2018-11-22 14:04:08",
    "Module": "Data query"
   }, {
    "OpContent": "(Successful. Number of rows: 0.)SELECT `TABLE_NAME` FROM information_schem
a.tables WHERE TABLE_TYPE = &#39;BASE TABLE&#39; AND table_schema = &#39;dmstest_database&#
39;",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 12:11:41",
    "Module": "Data query"
   }, {
    "OpContent": "The administrator or DBA edits the database owner. Database name: dmstest_
prod_database@dmstest.rds...",
    "UserNick": "dmstest",
    "Database": "dmstest_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 12:11:14",
    "Module": "Data owner"
   }, {
    "OpContent": "The administrator or DBA edits the database owner. Database name: dmstest_
prod_database@dmstest.rds...",
    "UserNick": "dmstest",
    "Database": "dmstest_prod_database@dmstest.rds...(test)",
    "UserId": 12345678,
    "OpTime": "2018-11-22 12:11:07",
    "Module": "Data owner"
   }]
  },
  "TotalCount": 22,
  "RequestId": "47D56208-DB1D-4FD3-BE32-300E43185488",
  "Success": true
}
```


SDK example

For more information about how to use the SDK, see the Alibaba Cloud SDK for Python.

Example:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkdms_enterprise.request.v20181101.GetOpLogRequest import GetOpLogRequest
client = AcsClient(
    "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>"
)
request = GetOpLogRequest()
request.set_Tid("Enter the tenant ID of your enterprise")
request.set_StartTime("2018-11-20 00:00:00")
request.set_EndTime("2018-11-23 00:00:00")
request.set_PageNumber(1)
request.set_PageSize(50)
response = client.do_action_with_exception(request)
print response
```

13.1.2.5. Approval processes

13.1.2.5.1. ListWorkFlowTemplates

Queries the details about approval templates.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListWorkFlowTemplates	The operation that you want to perform. Set the value to **ListWorkFlowTemplates**.
Tid	Long	Yes	-1	The ID of the tenant.
SearchName	String	No	Admin	The name that is used to search for approval templates.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.

Parameter	Type	Example	Description
RequestId	String	41067071-0243-4AAB-B3CF-4DE6D54F53B4	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
WorkFlowTemplates	Array of WorkFlowTemplate		The approval templates.
WorkFlowTemplate			
Comment	String	test	The remarks.
CreateUserId	Long	1234	The ID of the creator.
Enabled	String	Y	Indicates whether the approval template is enabled. Valid values: • Y: enabled • N: disabled
IsSystem	Integer	1	Indicates whether the approval template is predefined by the system. Valid values: • 1: The approval template is predefined by the system. • 0: The approval template is not predefined by the system.
TemplateId	Long	12345	The ID of the approval template.
TemplateName	String	Admin	The name of the approval template.
WorkflowNodes	Array of WorkflowNode		The details about approval nodes.
WorkflowNode			
Comment	String	test	The remarks.

Parameter	Type	Example	Description
CreateUserId	Long	1234	The ID of the creator.
NodeId	Long	123	The ID of the approval node.
NodeName	String	test	The name of the approval node.
NodeType	String	SYS	The type of the approval node. Valid values: • SYS: The approval node is predefined by the system. • USER_LIST: The approval node is created by a user.
Position	Integer	1	The order.
TemplateId	Long	12345	The ID of the approval template.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListWorkFlowTemplates
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>41067071-0243-4AAB-B3CF-4DE6D54F53B4</RequestId>
<Success>true</Success>
<WorkFlowTemplates>
    <WorkFlowTemplate>
        <Comment>The system-defined approval workflow. Only an administrator is included in
the approval workflow to review requests.</Comment>
        <WorkFlowNodes>
            <WorkFlowNode>
                <Comment>The system-defined node that is dynamically generated. Requests ar
e reviewed by an administrator.</Comment>
                <NodeName>Admin</NodeName>
                <Position>0</Position>
                <NodeType>SYS</NodeType>
                <NodeId>3763</NodeId>
                <TemplateId>6243</TemplateId>
            </WorkFlowNode>
        </WorkFlowNodes>
```

```
        <TemplateName>Admin</TemplateName>
        <Enabled>Y</Enabled>
        <IsSystem>1</IsSystem>
        <TemplateId>6243</TemplateId>
    </WorkFlowTemplate>
    <WorkFlowTemplate>
        <Comment>The system-defined approval workflow. Each request must be reviewed by the
data owner, DBA, and admin in sequence.</Comment>
        <WorkflowNodes>
            <WorkFlowNode>
                <Comment>The system-defined node that is dynamically generated. The owner o
f the resources that you want to manage is required to review the related requests.</Commen
t>
                <NodeName>Owner</NodeName>
                <Position>0</Position>
                <NodeType>SYS</NodeType>
                <NodeId>3762</NodeId>
                <TemplateId>6244</TemplateId>
            </WorkFlowNode>
            <WorkFlowNode>
                <Comment>The system-defined node that is dynamically generated. The DBA of
the resources that you want to manage is required to review the related requests.</Comment>
                <NodeName>DBA</NodeName>
                <Position>0</Position>
                <NodeType>SYS</NodeType>
                <NodeId>3761</NodeId>
                <TemplateId>6244</TemplateId>
            </WorkFlowNode>
            <WorkFlowNode>
                <Comment>The system-defined node that is dynamically generated. Requests ar
e reviewed by an administrator.</Comment>
                <NodeName>Admin</NodeName>
                <Position>0</Position>
                <NodeType>SYS</NodeType>
                <NodeId>3763</NodeId>
                <TemplateId>6244</TemplateId>
            </WorkFlowNode>
        </WorkflowNodes>
        <TemplateName>Owner--&gt;DBA--&gt;Admin</TemplateName>
        <Enabled>Y</Enabled>
        <IsSystem>1</IsSystem>
        <TemplateId>6244</TemplateId>
    </WorkFlowTemplate>
</WorkFlowTemplates>
```

`JSON` format

```
{
  "RequestId": "41067071-0243-4AAB-B3CF-4DE6D54F53B4",
  "Success": true,
  "WorkFlowTemplates": {
    "WorkFlowTemplate": [
      {
        "Comment": "The system-defined approval workflow. Only an administrator is included
```

```
in the approval workflow to review requests.",
        "WorkFlowNodes": {
          "WorkFlowNode": [
            {
              "Comment": "The system-defined node that is dynamically generated. Requests a
re reviewed by an administrator.",
              "NodeName": "Admin",
              "Position": 0,
              "NodeType": "SYS",
              "NodeId": 3763,
              "TemplateId": 6243
            }
          ]
        },
        "TemplateName": "Admin",
        "Enabled": "Y",
        "IsSystem": 1,
        "TemplateId": 6243
      },
      {
        "Comment": "The system-defined approval workflow. Each request must be reviewed by
the data owner, DBA, and admin in sequence.",
        "WorkflowNodes": {
          "WorkFlowNode": [
            {
              "Comment": ">The system-defined node that is dynamically generated. The owner
of the resources that you want to manage is required to review the related requests.",
              "NodeName": "Owner",
              "Position": 0,
              "NodeType": "SYS",
              "NodeId": 3762,
              "TemplateId": 6244
            },
            {
              "Comment": "The system-defined node that is dynamically generated. The DBA of
the resources that you want to manage is required to review the related requests.",
              "NodeName": "DBA",
              "Position": 0,
              "NodeType": "SYS",
              "NodeId": 3761,
              "TemplateId": 6244
            },
            {
              "Comment": "The system-defined node that is dynamically generated. Requests a
re reviewed by an administrator.",
              "NodeName": "Admin",
              "Position": 0,
              "NodeType": "SYS",
              "NodeId": 3763,
              "TemplateId": 6244
            }
          ]
        },
        "TemplateName": "Owner-->DBA-->Admin",
```

```
        "Enabled": "Y",
        "IsSystem": 1,
        "TemplateId": 6244
      }
    ]
  }
}
```

13.1.2.5.2. ListWorkFlowNodes

Queries the details about approval nodes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListWorkFlowNodes	The operation that you want to perform. Set the value to **ListWorkFlowNodes**.
Tid	Long	Yes	-1	The ID of the tenant.
SearchName	String	No	admin	The name that is used to search for approval nodes.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	CFD8FE00-36D9-4C1B-940D-65A7B73D9066	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
WorkflowNodes	Array of WorkflowNode		The details about approval nodes.
WorkflowNode			

Parameter	Type	Example	Description
AuditUsers	Array of AuditUser		The details about approvers.
AuditUser			
NickName	String	test	The name of the approver.
RealName	String	test	The real name of the approver.
UserId	Long	123	The ID of the approver. The ID is different from the ID of the Apsara Stack tenant account of the approver.
Comment	String	test	The remarks.
CreateUserId	Long	123	The ID of the creator. The ID is different from the ID of the Apsara Stack tenant account of the creator.
CreateUserNickName	String	test	The name of the creator.
NodeId	Long	123	The ID of the node.
NodeName	String	test	The name of the node.
NodeType	String	SYS	The type of the node. Valid values: • SYS: The node is pre-defined by the system. • USER_LIST: The node is created by a user.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListWorkFlowNodes
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<WorkFlowNodes>
    <WorkflowNode>
        <Comment>This is a system-defined node that is dynamically generated. All requests
are reviewed by an administrator.</Comment>
        <NodeName>Admin</NodeName>
        <NodeType>SYS</NodeType>
        <NodeId>3763</NodeId>
        <AuditUsers>
        </AuditUsers>
    </WorkflowNode>
</WorkFlowNodes>
<RequestId>CFD8FE00-36D9-4C1B-940D-65A7B73D9066</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "WorkFlowNodes": {
    "WorkflowNode": [
      {
        "Comment": "This is a system-defined node that is dynamically generated. All reques
ts are reviewed by an administrator.",
        "NodeName": "Admin",
        "NodeType": "SYS",
        "NodeId": 3763,
        "AuditUsers": {
          "AuditUser": []
        }
      }
    ]
  },
  "RequestId": "CFD8FE00-36D9-4C1B-940D-65A7B73D9066",
  "Success": true
}
```

13.1.2.6. Metadata of databases and tables

13.1.2.6.1. SearchDatabase

Queries the details about databases.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SearchDatabase	The operation that you want to perform. Set the value to **SearchDatabase**.

Parameter	Type	Required	Example	Description
PageNumber	Integer	Yes	1	The number of the page to return.
SearchKey	String	Yes	testdb	The keyword that is used to search for databases.
Tid	Long	Yes	1	The ID of the tenant.
PageSize	Integer	No	10	The number of entries to return on each page.
EnvType	String	No	product	The environment of the database.
SearchRange	String	No	HAS_PERMSSION	The range of databases. Valid values: • **HAS_PERMSSION**: databases on which the current user has permissions • **OWNER**: databases that are owned by the current user • **MY_FOCUS**: databases that are followed by the current user • **UNKNOWN**: all databases
SearchTarget	String	No	SINGLE_DB	The category of databases. Valid values: • **DB**: all databases. • **SINGLE_DB**: single databases. • **LOGIC_DB**: logical databases.
DbType	String	No	MySQL	The type of databases. Valid values: • **MySQL** • **SQLServer** • **PostgreSQL** • **Oracle** • **DRDS** • **OceanBase** • **Mongo** • **Redis**
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	E0D21075-CD3E-4D98-8264-FD8AD04A63B6	The ID of the request.
SearchDatabaseList	Array of SearchDatabase		The details about databases.
SearchDatabase			
Alias	String	test	The alias of the database.
DatabaseId	String	1	The ID of the database.
DatalinkName	String	datalink_name	The name of the data link for the database.
DbType	String	mysql	The type of the database. Valid values: • **MySQL** • **SQLServer** • **PostgreSQL** • **Oracle** • **DRDS** • **OceanBase** • **Mongo** • **Redis**
DbaId	String	1	The ID of the database administrator (DBA) for the database.
Encoding	String	utf8	The encoding of the database.
EnvType	String	product	The type of the environment to which the database belongs.

Parameter	Type	Example	Description
Host	String	xxx.xxx.xxx.xxx	The endpoint of the instance to which the database belongs.
Logic	Boolean	false	Indicates whether the database is a logical database. Valid values: • **true**: The database is a logical database. • **false**: The database is not a logical database.
OwnerIdList	List	1	The IDs of the owners of the database.
OwnerNameList	List	user1	The names of the owners of the database.
Port	Integer	3306	The port number of the instance to which the database belongs.
SchemaName	String	test	The name of the database.
SearchName	String	test@xxx.xxx.xxx.xxx:3306	The name that is used to search for the database.
Sid	String	testSid	The system identifier (SID) of the instance to which the database belongs.
TotalCount	Long	1	The total number of entries that are returned.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SearchDatabase
&PageNumber=1
&SearchKey=testdb
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>1</TotalCount>
<RequestId>E0D21075-CD3E-4D98-8264-FD8AD04A63B6</RequestId>
<SearchDatabaseList>
    <SearchDatabase>
        <Encoding>utf8mb4</Encoding>
        <Host>pc-xxx.mysql.polardb.rds.aliyuncs.com</Host>
        <DbType>polardb</DbType>
        <EnvType>dev</EnvType>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>88656</OwnerIds>
            <OwnerIds>104442</OwnerIds>
        </OwnerIdList>
        <Logic>false</Logic>
        <DbaId>88653</DbaId>
        <OwnerNameList>
            <OwnerNames>dmstest</OwnerNames>
            <OwnerNames>xx</OwnerNames>
            <OwnerNames>xx[RAM user]</OwnerNames>
        </OwnerNameList>
        <Port>3306</Port>
        <DatabaseId>117567</DatabaseId>
        <Alias>xx offline database</Alias>
        <SearchName>xxx@pc-xxx.mysql.polardb.rds.aliyuncs.com:3306[xx offline database]</Se
archName>
        <DatalinkName>dblink_38</DatalinkName>
        <SchemaName>xxx_0000</SchemaName>
    </SearchDatabase>
</SearchDatabaseList>
<Success>true</Success>
```

`JSON` format

```
{
  "TotalCount": 1,
  "RequestId": "E0D21075-CD3E-4D98-8264-FD8AD04A63B6",
  "SearchDatabaseList": {
    "SearchDatabase": [
      {
        "Encoding": "utf8mb4",
        "Host": "pc-xxx.mysql.polardb.rds.aliyuncs.com",
        "DbType": "polardb",
        "EnvType": "dev",
        "OwnerIdList": {
          "OwnerIds": [
            88653,
            88656,
            104442
          ]
        },
        "Logic": false,
        "DbaId": 88653,
        "OwnerNameList": {
          "OwnerNames": [
            "dmstest",
            "xx",
            "xx[RAM user]"
          ]
        },
        "Port": 3306,
        "DatabaseId": 117567,
        "Alias": "xx offline database",
        "SearchName": "xxx@pc-xxx.mysql.polardb.rds.aliyuncs.com:3306[xx offline database]"
,
        "DatalinkName": "dblink_38",
        "SchemaName": "xxx_0000"
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.2. SearchTable

Queries the details about tables.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SearchTable	The operation that you want to perform. Set the value to **SearchTable**.

Parameter	Type	Required	Example	Description
Tid	Long	No	1	The ID of the tenant.
SearchKey	String	No	test	The keyword that is used to search for tables.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.
EnvType	String	No	PRODUCT	The type of the environment to which the database belongs.
SearchTarget	String	No	LOGIC_TABLE	The type of tables to be queried. Valid values: • **TABLE**: all tables • **SINGLE_TABLE**: physical tables • **LOGIC_TABLE**: logical tables
SearchRange	String	No	OWNER	The permission that is required on tables to be queried. Valid values: • **HAS_PERMSSION**: tables on which the current user has permissions. • **OWNER**: tables that are owned by the current user. • **MY_FOCUS**: tables that are followed by the current user. • **UNKNOWN**: all tables.
DbType	String	No	MySQL	The type of the database. Valid values: • **MySQL** • **SQLServer** • **PostgreSQL** • **Oracle** • **DRDS** • **OceanBase** • **Mongo** • **Redis**

Parameter	Type	Required	Example	Description
ReturnGuid	Boolean	No	false	Specifies whether to return the globally unique identifier (GUID) of each table.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	1489257F-1B5D-4B5B-89EF-923C12CEEBD1	The ID of the request.
SearchTableList	Array of SearchTable		The details about the tables.
SearchTable			
DBSearchName	String	test	The name that is used to search for the database to which the table belongs.
DatabaseId	String	1	The ID of the database to which the table belongs.
DbName	String	test	The name of the database.
DbType	String	mysql	The type of the database. Valid values: • **MySQL** • **SQLServer** • **PostgreSQL** • **Oracle** • **DRDS** • **OceanBase** • **Mongo** • **Redis**

Parameter	Type	Example	Description
Description	String	test	The description.
Encoding	String	utf8	The encoding of the table.
Engine	String	innodb	The engine of the table.
EnvType	String	test	The type of the environment.
Logic	Boolean	false	Indicates whether the table is a logical table. Valid values: • **true**: The table is a logical table. • **false**: The table is not a logical table.
OwnerIdList	List	1	The IDs of the owners of the table.
OwnerNameList	List	user	The names of the owners of the table.
TableGuid	String	IDB_L_9032.db-test.yuyang_test	The GUID of the table.
TableId	String	1	The ID of the table.
TableName	String	test_table	The name of the table.
TableSchemaName	String	test@xxx.xxx.xxx.xxx:3306	The name of the database to which the table belongs.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	1	The total number of entries that are returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SearchTable
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SearchTableList>
    <SearchTable>
        <TableGuid>IDB_L_9032.db-test.yuyang_test</TableGuid>
        <Logic>false</Logic>
        <TableSchemaName>xxx_0000</TableSchemaName>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <DBSearchName>xxx_0000@pc-xxx.mysql.polardb.rds.aliyuncs.com:3306[xxx offline datab
ase]</DBSearchName>
        <DatabaseId>117567</DatabaseId>
        <Encoding>utf8mb4</Encoding>
        <TableName>test_aaaa</TableName>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>88656</OwnerIds>
            <OwnerIds>104442</OwnerIds>
        </OwnerIdList>
        <EnvType>dev</EnvType>
        <Engine>InnoDB</Engine>
        <TableId>18396767</TableId>
    </SearchTable>
</SearchTableList>
<TotalCount>1</TotalCount>
<RequestId>1489257F-1B5D-4B5B-89EF-923C12CEEBD1</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "SearchTableList": {
    "SearchTable": [
      {
        "TableGuid" : "IDB_L_9032.db-test.yuyang_test",
        "Logic": false,
        "TableSchemaName": "xxx_0000",
        "OwnerNameList": {
          "OwnerNames": [
            "xxx",
            "xxx",
            "xxx"
          ]
        },
        "DBSearchName": "xxx_0000@pc-xxx.mysql.polardb.rds.aliyuncs.com:3306[xxx offline da
tabase]",
        "DatabaseId": 117567,
        "Encoding": "utf8mb4",
        "TableName": "test_aaaa",
        "OwnerIdList": {
          "OwnerIds": [
            88653,
            88656,
            104442
          ]
        },
        "EnvType": "dev",
        "Engine": "InnoDB",
        "TableId": 18396767
      }
    ]
  },
  "TotalCount": 1,
  "RequestId": "1489257F-1B5D-4B5B-89EF-923C12CEEBD1",
  "Success": true
}
```


13.1.2.6.3. ListDatabases

Queries the details of databases in an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListDatabases	The operation that you want to perform. Set the value to **ListDatabases**.

Parameter	Type	Required	Example	Description
InstanceId	String	Yes	1	The instance ID. You can obtain the instance ID from the instance information that is returned by the **ListInstances** operation. The instance ID is different from the ID of an ApsaraDB RDS instance.
PageNumber	Integer	Yes	1	The number of the page to return.
Tid	Long	Yes	-1	The ID of the tenant.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DatabaseList	Array of Database		The details of databases.
Database			
CatalogName	String	1	The name of the database catalog. **Note** If the database type is PostgreSQL, the value indicates the name of the PostgreSQL database.
DatabaseId	String	1	The ID of the database.
DbType	String	mysql	The type of the database.
DbaId	String	1	The ID of the DBA to which the database belongs.
DbaName	String	dba_user	The name of the DBA to which the database belongs.

Parameter	Type	Example	Description
Encoding	String	utf-8	The encoding of the database.
EnvType	String	dev	The type of the environment to which the database belongs.
Host	String	xxx.xxx.xxx.xxx	The endpoint of the instance.
InstanceId	String	1	The ID of the instance to which the database belongs.
OwnerIdList	List	1	The IDs of database owners.
OwnerNameList	List	owner_name	The names of database owners.
Port	Integer	3306	The connection port of the instance.
SchemaName	String	test	The name of the database.
SearchName	String	test@xxx.xxx.xxx.xxx:3306	The name that is used to search for the database.
Sid	String	test	The ID of the instance to which the database belongs.
State	String	NORMAL	The status of the database. Valid values: • NORMAL: The database is normal. • DISABLE: The database is disabled. • OFFLINE: The database is unpublished. • NOT_EXIST: The database does not exist.
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	5541CDA6-F674-435C-81BD-40C2FB926CE3	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request succeeds.
TotalCount	Long	1	The total number of databases that belong to the instance.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListDatabases
&InstanceId=1
&PageNumber=1
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>1</TotalCount>
<RequestId>5541CDA6-F674-435C-81BD-40C2FB926CE3</RequestId>
<Success>true</Success>
<DatabaseList>
    <Database>
        <Encoding>utf8</Encoding>
        <Host>pc-xxx.rwlb.rds.aliyuncs.com</Host>
        <InstanceId>24710</InstanceId>
        <DbType>polardb</DbType>
        <EnvType>product</EnvType>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
        </OwnerIdList>
        <DbaId>104442</DbaId>
        <OwnerNameList>
            <OwnerNames>dmstest</OwnerNames>
        </OwnerNameList>
        <Port>3306</Port>
        <DatabaseId>116366</DatabaseId>
        <State>NORMAL</State>
        <SearchName>xxx_test@pc-xxx.rwlb.rds.aliyuncs.com:3306【xxx_test】</SearchName>
        <DbaName>xxx[RAM user]</DbaName>
        <SchemaName>xxx_test</SchemaName>
    </Database>
</DatabaseList>
```

`JSON` format

```
{
  "TotalCount": 1,
  "RequestId": "5541CDA6-F674-435C-81BD-40C2FB926CE3",
  "Success": true,
  "DatabaseList": {
    "Database": [
      {
        "Encoding": "utf8",
        "Host": "pc-xxx.rwlb.rds.aliyuncs.com",
        "InstanceId": 24710,
        "DbType": "polardb",
        "EnvType": "product",
        "OwnerIdList": {
          "OwnerIds": [
            88653
          ]
        },
        "DbaId": 104442,
        "OwnerNameList": {
          "OwnerNames": [
            "dmstest"
          ]
        },
        "Port": 3306,
        "DatabaseId": 116366,
        "State": "NORMAL",
        "SearchName": "xxx_test@pc-xxx.rwlb.rds.aliyuncs.com:3306【xxx_test】",
        "DbaName": "xxx[RAM user]",
        "SchemaName": "xxx_test"
      }
    ]
  }
}
```


13.1.2.6.4. ListLogicDatabases

Queries the details about logical databases.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListLogicDatabases	The operation that you want to perform. Set the value to **ListLogicDatabases**.
PageNumber	Integer	Yes	1	The number of the page to return.

Parameter	Type	Required	Example	Description
Tid	Long	Yes	-1	The ID of the tenant.
PageSize	Integer	No	50	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
LogicDatabaseList	Array of LogicDatabase		The details about logical databases.
LogicDatabase			
DatabaseId	String	1	The ID of the logical database.
DbType	String	mysql	The type of the logical database.
EnvType	String	test	The type of the environment to which the logical database belongs.
Logic	Boolean	true	Indicates whether the database is a logical database. The value is set to true.
OwnerIdList	List	1	The IDs of the owners of the logical database.
OwnerNameList	List	owner_name	The names of the owners of the logical database.
SchemaName	String	logic_db	The name of the logical database.

Parameter	Type	Example	Description
SearchName	String	loigc_db	The name that is used to search for the logical database.
RequestId	String	BAD154C0-DA38-48FA-97AB-E72912EEAA24	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	13	The total number of logical databases.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListLogicDatabases
&PageNumber=1
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>13</TotalCount>
<RequestId>BAD154C0-DA38-48FA-97AB-E72912EEAA24</RequestId>
<LogicDatabaseList>
    <LogicDatabase>
        <Logic>true</Logic>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <DatabaseId>257</DatabaseId>
        <SearchName>test_db(This is a logical database.)</SearchName>
        <DbType>mysql</DbType>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
        </OwnerIdList>
        <EnvType>dev</EnvType>
        <SchemaName>test_db</SchemaName>
    </LogicDatabase>
    <LogicDatabase>
        <Logic>true</Logic>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <DatabaseId>258</DatabaseId>
        <SearchName>xxx_test(This is a logical database.)</SearchName>
        <DbType>mysql</DbType>
        <OwnerIdList>
            <OwnerIds>88656</OwnerIds>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>101252</OwnerIds>
        </OwnerIdList>
        <EnvType>product</EnvType>
        <SchemaName>idb_test</SchemaName>
    </LogicDatabase>
</LogicDatabaseList>
<Success>true</Success>
```

`JSON` format

```
{
  "TotalCount": 13,
  "RequestId": "BAD154C0-DA38-48FA-97AB-E72912EEAA24",
  "LogicDatabaseList": {
    "LogicDatabase": [
      {
        "Logic": true,
        "OwnerNameList": {
          "OwnerNames": [
            "xxx"
          ]
        },
        "DatabaseId": 257,
        "SearchName": "test_db(This is a logical database)",
        "DbType": "mysql",
        "OwnerIdList": {
          "OwnerIds": [
            88653
          ]
        },
        "EnvType": "dev",
        "SchemaName": "test_db"
      },
      {
        "Logic": true,
        "OwnerNameList": {
          "OwnerNames": [
            "xxx",
            "xxx",
            "xxx"
          ]
        },
        "DatabaseId": 258,
        "SearchName": "xxx_test(This is a logical database)",
        "DbType": "mysql",
        "OwnerIdList": {
          "OwnerIds": [
            88656,
            88653,
            101252
          ]
        },
        "EnvType": "product",
        "SchemaName": "idb_test"
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.5. ListTables

Queries the details of tables in a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListTables	The operation that you want to perform. Set the value to **ListTables**.
DatabaseId	String	Yes	1	The ID of the database.
PageNumber	Integer	Yes	1	The number of the page to return.
Tid	Long	Yes	-1	The ID of the tenant.
PageSize	Integer	No	10	The number of entries to return on each page.
SearchName	String	No	test	The keyword that is used to query tables. Prefix match is used.
ReturnGuid	Boolean	No	true	Specifies whether to return the GUID of the table.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	B16FB618-5E96-4FFD-BB0D-490C890A4030	The ID of the request.
Success	Boolean	true	Indicates whether the call succeeded.
TableList	Array of Table		The details about the tables.

Parameter	Type	Example	Description
Table			
DatabaseId	String	1	The ID of the database.
Description	String	test	The description of the table.
Encoding	String	utf8	The encoding of the table.
Engine	String	innodb	The engine of the table.
NumRows	Long	1	The number of rows in the table. This is a statistical value and does not indicate the actual number of rows.
OwnerIdList	List	1	The IDs of the table owners.
OwnerNameList	List	owner_name	The nicknames of the table owners.
StoreCapacity	Long	1024	The storage space that is occupied by the table. This is a statistical value and does not indicate the accurate storage space.
TableGuid	String	IDB_308302.yuyang_test.test_ch	The GUID of the table.
TableId	String	1	The ID of the table.
TableName	String	test	The name of the table.
TableSchemaName	String	test_db	The name of the database to which the table belongs.
TableType	String	NORMAL	The type of the table. Default value: NORMAL.
TotalCount	Long	12	The total number of tables that meet the query conditions.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListTables
&DatabaseId=1
&PageNumber=1
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TableList>
    <Table>
        <TableSchemaName>yuyang_test</TableSchemaName>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <DatabaseId>116367</DatabaseId>
        <Encoding>utf8mb4</Encoding>
        <NumRows>3</NumRows>
        <StoreCapacity>1</StoreCapacity>
        <TableName>base_user</TableName>
        <TableGuid>IDB_18396363.yuyang_test.base_user</TableGuid>
        <TableType>NORMAL</TableType>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>104442</OwnerIds>
        </OwnerIdList>
        <Engine>InnoDB</Engine>
        <TableId>18396363</TableId>
    </Table>
    <Table>
        <TableSchemaName>yuyang_test</TableSchemaName>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <DatabaseId>116367</DatabaseId>
        <Encoding>utf8mb4</Encoding>
        <NumRows>2</NumRows>
        <StoreCapacity>1</StoreCapacity>
        <TableName>biz_orders</TableName>
        <TableType>NORMAL</TableType>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>104442</OwnerIds>
        </OwnerIdList>
        <Engine>InnoDB</Engine>
        <TableId>18390459</TableId>
    </Table>
</TableList>
<TotalCount>12</TotalCount>
<RequestId>B16FB618-5E96-4FFD-BB0D-490C890A4030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "TableList": {
    "Table": [
      {
        "TableSchemaName": "yuyang_test",
        "OwnerNameList": {
```

```
          "OwnerNames": [
            "xxx",
            "xxx"
          ]
        },
        "DatabaseId": 116367,
        "Encoding": "utf8mb4",
        "NumRows": 3,
        "StoreCapacity": 1,
        "TableName": "base_user",
        "TableGuid": "IDB_18396363.yuyang_test.base_user",
        "TableType": "NORMAL",
        "OwnerIdList": {
          "OwnerIds": [
            88653,
            104442
          ]
        },
        "Engine": "InnoDB",
        "TableId": 18396363
      },
      {
        "TableSchemaName": "yuyang_test",
        "OwnerNameList": {
          "OwnerNames": [
            "xxx",
            "xxx"
          ]
        },
        "DatabaseId": 116367,
        "Encoding": "utf8mb4",
        "NumRows": 2,
        "StoreCapacity": 1,
        "TableName": "biz_orders",
        "TableType": "NORMAL",
        "OwnerIdList": {
          "OwnerIds": [
            88653,
            104442
          ]
        },
        "Engine": "InnoDB",
        "TableId": 18390459
      }
    ]
  },
  "TotalCount": 12,
  "RequestId": "B16FB618-5E96-4FFD-BB0D-490C890A4030",
  "Success": true
}
```


13.1.2.6.6. ListLogicTables

Queries the details of logical tables in a logical database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListLogicTables	The operation that you want to perform. Set the value to **ListLogicTables**.
DatabaseId	String	Yes	1	The ID of the logical database.
PageNumber	Integer	Yes	1	The number of the page to return.
Tid	Long	Yes	-1	The ID of the tenant.
PageSize	Integer	No	10	The number of entries to return on each page.
SearchName	String	No	test	The keyword that is used to query logical tables. Prefix match is used.
ReturnGuid	Boolean	No	true	Specifies whether to return the GUID of the table.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
LogicTableList	Array of LogicTable		The details of logical tables.
LogicTable			
DatabaseId	String	1	The ID of the logical database.

Parameter	Type	Example	Description
Logic	Boolean	true	Indicates whether the table is a logical table. Default value: true.
OwnerIdList	List	1	The IDs of owners for the logical table.
OwnerNameList	List	owner_name	The nicknames of owners for the logical table.
SchemaName	String	yuyang_test	The logical database to which the logical table belongs.
TableCount	String	4	The number of subtables.
TableExpr	String	test[1-4]	The expression of the logical table.
TableGuid	String	IDB_L_308302.yuyang_test.test_ch	The GUID of the logical table.
TableId	String	1	The ID of the logical table.
TableName	String	test	The name of the logical table.
RequestId	String	F1E6484F-9DF1-4406-9BDE-0861C4629B69	The ID of the request.
Success	Boolean	true	Indicates whether the call succeeded.
TotalCount	Long	1	The total number of logical tables that meet the query conditions.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListLogicTables
&DatabaseId=1
&PageNumber=1
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>1</TotalCount>
<RequestId>F1E6484F-9DF1-4406-9BDE-0861C4629B69</RequestId>
<LogicTableList>
    <LogicTable>
        <Logic>true</Logic>
        <OwnerNameList>
            <OwnerNames>xxx</OwnerNames>
            <OwnerNames>xxx</OwnerNames>
        </OwnerNameList>
        <TableExpr>t[1-4]</TableExpr>
        <DatabaseId>267</DatabaseId>
        <SchemaName>yuyang_test</SchemaName>
        <TableName>t</TableName>
        <TableGuid>IDB_L_3057.yuyang_test.t</TableGuid>
        <TableCount>4</TableCount>
        <OwnerIdList>
            <OwnerIds>88653</OwnerIds>
            <OwnerIds>104442</OwnerIds>
        </OwnerIdList>
        <TableId>3057</TableId>
    </LogicTable>
</LogicTableList>
<Success>true</Success>
```

`JSON` format

```
{
  "TotalCount": 1,
  "RequestId": "F1E6484F-9DF1-4406-9BDE-0861C4629B69",
  "LogicTableList": {
    "LogicTable": [
      {
        "Logic": true,
        "OwnerNameList": {
          "OwnerNames": [
            "xxx",
            "xxx"
          ]
        },
        "TableExpr": "t[1-4]",
        "DatabaseId": 267,
        "SchemaName": "yuyang_test",
        "TableName": "t",
        "TableGuid": "IDB_L_3057.yuyang_test.t",
        "TableCount": 4,
        "OwnerIdList": {
          "OwnerIds": [
            88653,
            104442
          ]
        },
        "TableId": 3057
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.7. ListColumns

Queries the details about columns in a table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListColumns	The operation that you want to perform. Set the value to **ListColumns**.
Logic	Boolean	Yes	false	Specifies whether the table is a logical table.

Parameter	Type	Required	Example	Description
TableId	String	Yes	1	The ID of the table.
Tid	Long	Yes	0	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ColumnList	Array of Column		The details about columns.
Column			
AutoIncrement	Boolean	false	Indicates whether the column is an auto-increment column. Valid values: • true: The column is an auto-increment column. • false: The column is not an auto-increment column.
ColumnId	String	1	The ID of the column.
ColumnName	String	name	The name of the column.
ColumnType	String	varchar	The type of the column.
DataLength	Long	32	The length of the column.
DataPrecision	Integer	0	The precision of the column.
DataScale	Integer	0	The scale of the column.
DefaultValue	String	def_value	The default value of the column.
Description	String	test	The description of the column.

Parameter	Type	Example	Description
FunctionType	String	default	The type of the masking algorithm that is used for the column. Valid values: • null: No masking algorithm is used. • DEFAULT: A full masking algorithm is used. • FIX_POS: The fixed position is masked. • FIX_CHAR: The fixed characters are replaced.
Nullable	Boolean	true	Indicates whether the column can be null.
SecurityLevel	String	INNER	The security level of the field. Valid values: • INNER • SENSITIVE • CONFIDENTIAL
Sensitive	Boolean	false	Indicates whether the field is a sensitive field.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	0AD9AC55-5873-474A-9F33-4285806A3619	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListColumns
&Logic=false
&TableId=1
&Tid=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ColumnList>
    <Column>
        <ColumnId>314036829</ColumnId>
        <DataScale>0</DataScale>
        <Sensitive>false</Sensitive>
        <Description>Primary key ID</Description>
        <DataPrecision>20</DataPrecision>
        <ColumnType>bigint(20) unsigned</ColumnType>
        <ColumnName>id</ColumnName>
        <SecurityLevel>INNER</SecurityLevel>
        <AutoIncrement>true</AutoIncrement>
        <Nullable>false</Nullable>
    </Column>
    <Column>
        <ColumnId>314036830</ColumnId>
        <Sensitive>false</Sensitive>
        <Description>Creation time</Description>
        <DefaultValue>CURRENT_TIMESTAMP</DefaultValue>
        <ColumnType>datetime</ColumnType>
        <ColumnName>gmt_create</ColumnName>
        <SecurityLevel>INNER</SecurityLevel>
        <AutoIncrement>false</AutoIncrement>
        <Nullable>false</Nullable>
    </Column>
    <Column>
        <ColumnId>314036831</ColumnId>
        <Sensitive>false</Sensitive>
        <Description>Modification time</Description>
        <DefaultValue>CURRENT_TIMESTAMP</DefaultValue>
        <ColumnType>datetime</ColumnType>
        <ColumnName>gmt_modified</ColumnName>
        <SecurityLevel>INNER</SecurityLevel>
        <AutoIncrement>false</AutoIncrement>
        <Nullable>false</Nullable>
    </Column>
    <Column>
        <ColumnId>314036832</ColumnId>
        <Sensitive>false</Sensitive>
        <Description>base_user</Description>
        <ColumnType>varchar(64)</ColumnType>
        <DataLength>64</DataLength>
        <ColumnName>user_name</ColumnName>
        <SecurityLevel>INNER</SecurityLevel>
        <AutoIncrement>false</AutoIncrement>
        <Nullable>true</Nullable>
    </Column>
</ColumnList>
<RequestId>0AD9AC55-5873-474A-9F33-4285806A3619</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "ColumnList": {
    "Column": [
      {
        "ColumnId": 314036829,
        "DataScale": 0,
        "Sensitive": false,
        "Description": "Primary key ID",
        "DataPrecision": 20,
        "ColumnType": "bigint(20) unsigned",
        "ColumnName": "id",
        "SecurityLevel": "INNER",
        "AutoIncrement": true,
        "Nullable": false
      },
      {
        "ColumnId": 314036830,
        "Sensitive": false,
        "Description": "Creation time",
        "DefaultValue": "CURRENT_TIMESTAMP",
        "ColumnType": "datetime",
        "ColumnName": "gmt_create",
        "SecurityLevel": "INNER",
        "AutoIncrement": false,
        "Nullable": false
      },
      {
        "ColumnId": 314036831,
        "Sensitive": false,
        "Description": "Modification time",
        "DefaultValue": "CURRENT_TIMESTAMP",
        "ColumnType": "datetime",
        "ColumnName": "gmt_modified",
        "SecurityLevel": "INNER",
        "AutoIncrement": false,
        "Nullable": false
      },
      {
        "ColumnId": 314036832,
        "Sensitive": false,
        "Description": "base_user",
        "ColumnType": "varchar(64)",
        "DataLength": 64,
        "ColumnName": "user_name",
        "SecurityLevel": "INNER",
        "AutoIncrement": false,
        "Nullable": true
      }
    ]
  },
  "RequestId": "0AD9AC55-5873-474A-9F33-4285806A3619",
  "Success": true
}
```

13.1.2.6.8. ListIndexes

Queries the details of indexes for a table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListIndexes	The operation that you want to perform. Set the value to **ListIndexes**.
Logic	Boolean	Yes	false	Specifies whether the table is a logical table.
TableId	String	Yes	1	The ID of the table.
Tid	Long	Yes	0	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
IndexList	Array of Index		The details of indexes.
Index			
IndexComment	String	test	The description of each index.
IndexId	String	1	The ID of the index.
IndexName	String	idx_test	The name of the index.

Parameter	Type	Example	Description
IndexType	String	Primary	The type of the index. Valid values: • Primary • Unique • Normal • FullText • Spatial
TableId	String	1	The ID of the table.
RequestId	String	1F4DE2F1-5B47-462A-A973-E02EB7AF386B	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeds.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListIndexes
&Logic=false
&TableId=1
&Tid=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>1F4DE2F1-5B47-462A-A973-E02EB7AF386B</RequestId>
<IndexList>
    <Index>
        <IndexComment/>
        <IndexType>Primary</IndexType>
        <IndexName>PRIMARY</IndexName>
        <IndexId>49331416</IndexId>
        <TableId>18396274</TableId>
    </Index>
</IndexList>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "1F4DE2F1-5B47-462A-A973-E02EB7AF386B",
  "IndexList": {
    "Index": [
      {
        "IndexComment": "",
        "IndexType": "Primary",
        "IndexName": "PRIMARY",
        "IndexId": 49331416,
        "TableId": 18396274
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.9. GetDatabase

Queries the details about a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetDatabase	The operation that you want to perform. Set the value to **GetDatabase**.
Host	String	Yes	xxx.xxx.xxx.xxx	The endpoint of the instance.
Port	Integer	Yes	3306	The port that is used to connect to the instance.
SchemaName	String	Yes	test_db	The name of the database.
Tid	Long	Yes	-1	The ID of the tenant.
Sid	String	No	test_sid	The system identifier (SID) of the instance.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
Database	Struct		The details about the database.
CatalogName	String	def	The name of the database catalog. **Note** If the database type is PostgreSQL, the value indicates the name of the PostgreSQL database.
DatabaseId	String	1	The ID of the database.
DbType	String	mysql	The type of the database.
DbaId	String	1	The ID of the database administrator (DBA).
DbaName	String	dba_name	The name of the DBA.
Encoding	String	utf8mb4	The encoding of the database.
EnvType	String	test	The type of the environment to which the database belongs.
Host	String	xxx.xxx.xxx.xxx	The endpoint of the instance.
InstanceId	String	1	The ID of the instance.
OwnerIdList	List	1	The IDs of the owners of the database.
OwnerNameList	List	test	The names of the owners of the database.
Port	Integer	3306	The number of the port that is used to connect to the instance.
SchemaName	String	test_db	The name of the schema.

Parameter	Type	Example	Description
SearchName	String	test_db@xxx.xxx.xxx.xxx:3306	The name that is used to search for the database.
Sid	String	test_sid	The system identifier (SID) of the instance.
State	String	NORMAL	The status of the database. For more information about the valid values, see the **ListDatabases** operation.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	3CDB8601-AD74-4A47-8114-08E08CD6319D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetDatabase
&Host=xxx.xxx.xxx.xxx
&Port=3306
&SchemaName=test_db
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<Database>
    <Encoding>utf8mb4</Encoding>
    <Host>pc-xxx.rwlb.rds.aliyuncs.com</Host>
    <InstanceId>24710</InstanceId>
    <DbType>polardb</DbType>
    <OwnerIdList>
        <OwnerIds>88653</OwnerIds>
        <OwnerIds>104442</OwnerIds>
    </OwnerIdList>
    <EnvType>product</EnvType>
    <DbaId>104442</DbaId>
    <OwnerNameList>
        <OwnerNames>xxx</OwnerNames>
        <OwnerNames>xxx[RAM user]</OwnerNames>
    </OwnerNameList>
    <Port>3306</Port>
    <DatabaseId>116367</DatabaseId>
    <State>NORMAL</State>
    <SearchName>xxx_test@pc-xxx.rwlb.rds.aliyuncs.com:3306[xxx_test]</SearchName>
    <DbaName>xxx[RAM user]</DbaName>
    <SchemaName>xxx_test</SchemaName>
</Database>
<RequestId>3CDB8601-AD74-4A47-8114-08E08CD6319D</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "Database": {
    "Encoding": "utf8mb4",
    "Host": "pc-xxx.rwlb.rds.aliyuncs.com",
    "InstanceId": 24710,
    "DbType": "polardb",
    "OwnerIdList": {
      "OwnerIds": [
        88653,
        104442
      ]
    },
    "EnvType": "product",
    "DbaId": 104442,
    "OwnerNameList": {
      "OwnerNames": [
        "xxx",
        "xxx[RAM user]"
      ]
    },
    "Port": 3306,
    "DatabaseId": 116367,
    "State": "NORMAL",
    "SearchName": <SearchName>xxx_test@pc-xxx.rwlb.rds.aliyuncs.com:3306[xxx_test]</SearchName>
    "DbaName": "xxx[RAM user]"
    "SchemaName": "xxx_test"
  },
  "RequestId": "3CDB8601-AD74-4A47-8114-08E08CD6319D",
  "Success": true
}
```


13.1.2.6.10. GetLogicDatabase

Queries the details about a logical database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetLogicDatabase	The operation that you want to perform. Set the value to **GetLogicDatabase**.
DbId	String	Yes	1	The ID of the logical database.

Parameter	Type	Required	Example	Description
Tid	Long	Yes	0	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
LogicDatabase	Struct		The details about the logical database.
DatabaseId	String	1	The ID of the logical database.
DbType	String	mysql	The type of the database.
EnvType	String	dev	The type of the environment to which the database belongs.
Logic	Boolean	true	Indicates whether the database is a logical database. The value is fixed to true.
OwnerIdList	List	1	The IDs of the owners of the database.
OwnerNameList	List	owner_name	The names of the owners of the database.
SchemaName	String	test_logic_db	The name of the logical database.
SearchName	String	test_logic_db[xxx]	The name that is used to search for the logical database.
RequestId	String	90260530-565C-42B9-A6E8-893481FE6AB6	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetLogicDatabase
&DbId=1
&Tid=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<LogicDatabase>
    <Logic>true</Logic>
    <OwnerNameList>
        <OwnerNames>xxx</OwnerNames>
        <OwnerNames>xxx</OwnerNames>
        <OwnerNames>xxx</OwnerNames>
    </OwnerNameList>
    <DatabaseId>265</DatabaseId>
    <SearchName>test_logic_db(xxx)</SearchName>
    <DbType>mysql</DbType>
    <OwnerIdList>
        <OwnerIds>88653</OwnerIds>
        <OwnerIds>97787</OwnerIds>
        <OwnerIds>88654</OwnerIds>
    </OwnerIdList>
    <EnvType>dev</EnvType>
    <SchemaName>test_logic_db</SchemaName>
</LogicDatabase>
<RequestId>90260530-565C-42B9-A6E8-893481FE6AB6</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "LogicDatabase": {
    "Logic": true,
    "OwnerNameList": {
      "OwnerNames": [
        "xxx",
        "xxx",
        "xxx"
      ]
    },
    "DatabaseId": 265,
    "SearchName": "test_logic_db(xxx)",
    "DbType": "mysql",
    "OwnerIdList": {
      "OwnerIds": [
        88653,
        97787,
        88654
      ]
    },
    "EnvType": "dev",
    "SchemaName": "test_logic_db"
  },
  "RequestId": "90260530-565C-42B9-A6E8-893481FE6AB6",
  "Success": true
}
```


13.1.2.6.11. GetMetaTableDetailInfo

Queries the details of a table. These details include columns and indexes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetMetaTableDetailInfo	The operation that you want to perform. Set the value to **GetMetaTableDetailInfo**.

Parameter	Type	Required	Example	Description
TableGuid	String	Yes	IDB_L_9032.db-test.yuyang_test	The globally unique identifier (GUID) of the table in DMS. **Note** • To obtain the GUID of a logical database, set the **ReturnGuid** parameter to **true** when you call the **ListLogicTables** operation. • To obtain the GUID of a logical database, set the **ReturnGuid** parameter to **true** when you call the **ListTables** operation.
Tid	Long	No	123	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DetailInfo	Struct		The details of the table.
ColumnList	Array of Column		The columns.
AutoIncrement	Boolean	true	Indicates whether the column is an auto-increment column. Valid values: • true: The column is an auto-increment column. • false: The column is not an auto-increment column.
ColumnId	String	191234849	The ID of the column.
ColumnName	String	id	The name of the column.

Parameter	Type	Example	Description
ColumnType	String	bigint(20) unsigned	The data type of the column. Example: **Bigint**,**Int**, or **Varchar**.
DataLength	Integer	0	The length of the column.
DataPrecision	Integer	0	The precision of the column.
DataScale	Integer	0	The scale of the column.
Description	String	test	The description of the column.
Nullable	Boolean	false	Indicates whether the column is nullable. Valid values: • true: The column is nullable. • false: The column is not nullable.
Position	String	1	The position of the column in the table.
IndexList	Array of Index		The indexes.
IndexColumns	List	id,name	The indexed columns.
IndexId	String	123	The ID of the index.
IndexName	String	PRIMARY	The name of the index.
IndexType	String	Primary	The type of the index. Example: **Primary**, **Unique**, or **Normal**.
Unique	Boolean	false	Indicates whether the index is unique. Valid values: • true: The index is unique. • false: The index is not unique.
ErrorCode	String	UnknownError	The error code that is returned.

Parameter	Type	Example	Description
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	E881CB2F-DE42-42E5-90EB-8B3173DCB9B9	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeds.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetMetaTableDetailInfo
&TableGuid=IDB_L_9032.db-test.yuyang_test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>E881CB2F-DE42-42E5-90EB-8B3173DCB9B9</RequestId>
<DetailInfo>
    <ColumnList>
        <ColumnId>191234849</ColumnId>
        <ColumnName>id</ColumnName>
        <Description>test</Description>
        <ColumnType>bigint(20) unsigned</ColumnType>
        <Position>1</Position>
        <AutoIncrement>true</AutoIncrement>
        <DataScale>0</DataScale>
        <DataPrecision>20</DataPrecision>
        <Nullable>false</Nullable>
    </ColumnList>
    <ColumnList>
        <ColumnId>191234850</ColumnId>
        <ColumnName>gmt_create</ColumnName>
        <Description>test</Description>
        <ColumnType>datetime</ColumnType>
        <Position>2</Position>
        <AutoIncrement>false</AutoIncrement>
        <Nullable>false</Nullable>
    </ColumnList>
    <ColumnList>
        <ColumnId>191234851</ColumnId>
        <ColumnName>gmt_modified</ColumnName>
        <Description>test</Description>
        <ColumnType>datetime</ColumnType>
        <Position>3</Position>
        <AutoIncrement>false</AutoIncrement>
        <Nullable>false</Nullable>
    </ColumnList>
    <IndexList>
        <IndexName>PRIMARY</IndexName>
        <IndexId>33008763</IndexId>
        <IndexColumns>id</IndexColumns>
        <Unique>false</Unique>
        <IndexType>Primary</IndexType>
    </IndexList>
</DetailInfo>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "E881CB2F-DE42-42E5-90EB-8B3173DCB9B9",
  "DetailInfo": {
    "ColumnList": [
      {
        "ColumnId": 191234849,
        "ColumnName": "id",
        "Description": "test",
        "ColumnType": "bigint(20) unsigned",
        "Position": 1,
        "AutoIncrement": true,
        "DataScale": 0,
        "DataPrecision": 20,
        "Nullable": false
      },
      {
        "ColumnId": 191234850,
        "ColumnName": "gmt_create",
        "Description": "test",
        "ColumnType": "datetime",
        "Position": 2,
        "AutoIncrement": false,
        "Nullable": false
      },
      {
        "ColumnId": 191234851,
        "ColumnName": "gmt_modified",
        "Description": "test",
        "ColumnType": "datetime",
        "Position": 3,
        "AutoIncrement": false,
        "Nullable": false
      }
    ],
    "IndexList": [
      {
        "IndexName": "PRIMARY",
        "IndexId": 33008763,
        "IndexColumns": [
          "id"
        ],
        "Unique": false,
        "IndexType": "Primary"
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.12. GetTableDBTopology

Queries the topology of a table.

This operation is available only for logical databases.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetTableDBTopology	The operation that you want to perform. Set the value to **GetTableDBTopology**.
TableGuid	String	Yes	IDB_L_9032.db-test.yuyang_test	The globally unique identifier (GUID) of a table in Data Management (DMS). **Note** • To obtain the GUID of a table in a logical database, set the **ReturnGuid** parameter to **true** when you call the **ListLogicTables** operation. • To obtain the GUID of a table in a physical database, set the **ReturnGuid** parameter to **true** when you call the **ListTables** operation.
Tid	Long	No	123	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The ID of the region where Data Management (DMS) resides. **Note** Set this parameter to the ID of the region that is in proximity to your applications.

Response parameters

Parameter	Type	Example	Description
DBTopology	Struct		The topology information about the database.
DataSourceList	Array of DataSource		The data sources.

Parameter	Type	Example	Description
DatabaseList	Array of Database		The physical databases.
DbId	String	489347	The ID of the database.
DbName	String	db-test	The name of the database.
DbType	String	mysql	The type of the database.
EnvType	String	pre	The type of the environment. Valid values: • product: production environment • dev: development environment • pre: staging environment • test: test environment • sit: SIT environment • uat: UAT environment • pet: stress testing environment • stag: STAG environment
TableList	Array of Table		The physical tables.
TableId	String	151977812	The ID of the table.
TableName	String	yuyang_test_0000	The name of the table.
TableType	String	NORMAL	The type of the table. This is a reserved parameter.
DbType	String	mysql	The type of the database.
Host	String	xxx.mysql.polardb.rds.aliyuncs.com	The endpoint of the data source.
Port	Integer	3306	The port that is used to connect to the data source.
Sid	String	def	The system identifier (SID) of the data source.

Parameter	Type	Example	Description
TableGuid	String	IDB_L_9032.db-test.yuyang_test	The GUID of the table in DMS.
TableName	String	yuyang_test	The name of the table. **Note** • If a logical table is queried, the name of the logical table is returned. • If a physical table is queried, the name of the physical table is returned.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	853F7FD4-D922-4EFB-931C-D253EF159E06	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetTableDBTopology
&TableGuid=IDB_L_9032.db-test.yuyang_test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>55B7CF50-4610-4707-B2B2-5EF2BE000367</RequestId>
<DBTopology>
    <TableName>yuyang_test</TableName>
    <TableGuid>IDB_L_9032.db-test.yuyang_test</TableGuid>
    <DataSourceList>
        <DatabaseList>
            <DbId>489347</DbId>
            <DbName>db-test</DbName>
            <TableList>
                <TableId>151977811</TableId>
                <TableName>yuyang_test_0000</TableName>
            </TableList>
            <TableList>
                <TableId>151977812</TableId>
                <TableName>yuyang_test_0001</TableName>
            </TableList>
            <TableList>
                <TableId>151977813</TableId>
                <TableName>yuyang_test_0002</TableName>
            </TableList>
            <TableList>
                <TableId>151977814</TableId>
                <TableName>yuyang_test_0003</TableName>
            </TableList>
            <TableList>
                <TableId>151977815</TableId>
                <TableName>yuyang_test_0004</TableName>
            </TableList>
            <EnvType>dev</EnvType>
            <DbType>polardb</DbType>
        </DatabaseList>
        <Port>3306</Port>
        <Host>xxx.mysql.polardb.rds.aliyuncs.com</Host>
        <DbType>polardb</DbType>
    </DataSourceList>
</DBTopology>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "55B7CF50-4610-4707-B2B2-5EF2BE000367",
  "DBTopology": {
    "TableName": "yuyang_test",
    "TableGuid": "IDB_L_9032.db-test.yuyang_test",
    "DataSourceList": [
      {
        "DatabaseList": [
          {
            "DbId": 489347,
            "DbName": "db-test",
            "TableList": [
              {
                "TableId": 151977811,
                "TableName": "yuyang_test_0000"
              },
              {
                "TableId": 151977812,
                "TableName": "yuyang_test_0001"
              },
              {
                "TableId": 151977813,
                "TableName": "yuyang_test_0002"
              },
              {
                "TableId": 151977814,
                "TableName": "yuyang_test_0003"
              },
              {
                "TableId": 151977815,
                "TableName": "yuyang_test_0004"
              }
            ],
            "EnvType": "dev",
            "DbType": "polardb"
          }
        ],
        "Port": 3306,
        "Host": "xxx.mysql.polardb.rds.aliyuncs.com",
        "DbType": "polardb"
      }
    ]
  },
  "Success": true
}
```


13.1.2.6.13. GetMetaTableColumn

Queries the details about columns in a table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetMetaTableColumn	The operation that you want to perform. Set the value to **GetMetaTableColumn**.
TableGuid	String	Yes	IDB_L_11345.yuyang_test.base_user	The globally unique identifier (GUID) of a table in Data Management (DMS). **Note** • To obtain the GUID of a table in a logical database, set the **ReturnGuid** parameter to **true** when you call the **ListLogicTables** operation. • To obtain the GUID of a table in a physical database, set the **ReturnGuid** parameter to **true** when you call the **ListTables** operation.
Tid	Long	No	123	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ColumnList	Array of Column		The columns.
AutoIncrement	Boolean	true	Indicates whether the column is an auto-increment column. Valid values: • **true**: The column is an auto-increment column. • **false**: The column is not an auto-increment column.
ColumnId	String	191234849	The ID of the column.

Parameter	Type	Example	Description
ColumnName	String	id	The name of the column.
ColumnType	String	bigint(20) unsigned	The data type of the column. Examples: **Bigint** , **Int**, and **Varchar**.
DataLength	Integer	0	The length of the column.
DataPrecision	Integer	0	The precision of data in the column.
DataScale	Integer	0	The scale of data in the column.
Description	String	test	The description of the column.
Nullable	Boolean	false	Indicates whether the column is empty. Valid values: • **true**: The column is empty. • **false**: The column is not empty.
Position	Integer	1	The order of the column in the table.
PrimaryKey	String	true	Indicates whether the column is the primary key. • **true**: The column is the primary key. • **false**: The column is not the primary key.
SecurityLevel	String	INNER	The sensitivity level of the column. Valid values: • **INNER** • **SENSITIVE** • **CONFIDENTIAL**
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	2B581A5E-D4FE-4F77-BADE-DD944D7BEBE2	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetMetaTableColumn
&TableGuid=IDB_L_11345.yuyang_test.base_user
&<Common request parameters>
```

Sample success responses

`XML` format

```
<GetMetaTableColumnResponse>
      <RequestId>2B581A5E-D4FE-4F77-BADE-DD944D7BEBE2</RequestId>
      <ErrorCode>UnknownError</ErrorCode>
      <ColumnList>
            <ColumnId>191234849</ColumnId>
            <ColumnName>id</ColumnName>
            <Description>test</Description>
            <ColumnType>bigint(20) unsigned</ColumnType>
            <Position>1</Position>
            <AutoIncrement>true</AutoIncrement>
            <SecurityLevel>INNER</SecurityLevel>
            <DataScale>0</DataScale>
            <DataLength>0</DataLength>
            <DataPrecision>0</DataPrecision>
            <PrimaryKey>true</PrimaryKey>
            <Nullable>false</Nullable>
      </ColumnList>
      <ErrorMessage>UnknownError</ErrorMessage>
      <Success>true</Success>
</GetMetaTableColumnResponse>
```

`JSON` format

```
{
 "RequestId": "2B581A5E-D4FE-4F77-BADE-DD944D7BEBE2",
 "ErrorCode": "UnknownError",
 "ColumnList": [{
  "ColumnId": "191234849",
  "ColumnName": "id",
  "Description": "test",
  "ColumnType": "bigint(20) unsigned",
  "Position": "1",
  "AutoIncrement": "true",
  "SecurityLevel": "INNER",
  "DataScale": "0",
  "DataLength": "0",
  "DataPrecision": "0",
  "PrimaryKey": "true",
  "Nullable": "false"
 }],
 "ErrorMessage": "UnknownError",
 "Success": "true"
}
```


13.1.2.6.14. SyncDatabaseMeta

Synchronizes the metadata of a database dictionary.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SyncDatabaseMeta	The operation that you want to perform. Set the value to **SyncDatabaseMeta**.
DbId	String	Yes	123	The ID of the database.
Tid	Long	Yes	-1	The ID of the tenant.
Logic	Boolean	No	false	Specifies whether the database is a logical database.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	A99CD576-1E18-4E86-931E-C3CCE56DC030	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SyncDatabaseMeta
&DbId=123
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>A99CD576-1E18-4E86-931E-C3CCE56DC030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "A99CD576-1E18-4E86-931E-C3CCE56DC030",
  "Success": true
}
```

13.1.2.6.15. SyncInstanceMeta

Synchronizes the metadata of all database dictionaries in an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SyncInstanceMeta	The operation that you want to perform. Set the value to **SyncInstanceMeta**.

Parameter	Type	Required	Example	Description
InstanceId	String	Yes	1234	The ID of the instance.
Tid	Long	Yes	-1	The ID of the tenant.
IgnoreTable	Boolean	No	true	Specifies whether to skip synchronization for the metadata of table dictionaries. Valid values: • true • false
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	A99CD576-1E18-4E86-931E-C3CCE56DC030	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SyncInstanceMeta
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>A99CD576-1E18-4E86-931E-C3CCE56DC030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "A99CD576-1E18-4E86-931E-C3CCE56DC030",
  "Success": true
}
```

13.1.2.7. Ticket operations

13.1.2.7.1. General

13.1.2.7.1.1. ApproveOrder

Reviews a ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ApproveOrder	The operation that you want to perform. Set the value to **ApproveOrder**.
ApprovalType	String	Yes	agree	The action that you want to perform on the ticket. Valid values: • AGREE • CANCEL • REJECT
Tid	Long	Yes	-1	The ID of the tenant. **Note** To view the ID of the tenant, perform the following steps: Log on to the Data Management (DMS) console. Move the pointer over the profile picture in the upper-right corner of the page.
WorkflowInstanceId	Long	Yes	1234	The ID of the approval process. You can call the **GetOrderBaseInfo** operation to obtain the ID. The ID is available only for a ticket that is pending approval. The value of this parameter is an integer that is greater than zero.

Parameter	Type	Required	Example	Description
RegionId	String	No	cn-hangzhou	The region ID.
Comment	String	No	test	The remarks.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ApproveOrder
&ApprovalType=agree
&Tid=-1
&WorkflowInstanceId=1234
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D",
  "Success": true
}
```

13.1.2.7.1.2. CloseOrder

Closes a ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CloseOrder	The operation that you want to perform. Set the value to **CloseOrder**.
CloseReason	String	Yes	close reason	The reason why the ticket is closed.
OrderId	Long	Yes	1343	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the call succeeds.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CloseOrder
&CloseReason=close reason
&OrderId=1343
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D",
  "Success": true
}
```

13.1.2.7.1.3. GetApprovalDetail

Queries the approval details of a ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetApprovalDetail	The operation that you want to perform. Set the value to **GetApprovalDetail**.
Tid	Long	Yes	-1	The ID of the tenant.
WorkflowInstanceId	Long	Yes	12345	The ID of the approval process. You can call the **GetOrderBaseInfo** operation to obtain the ID. The ID is available only for a ticket that is pending approval. The value of this parameter is an integer that is greater than zero.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ApprovalDetail	Struct		The details of the approval process.
AuditId	Long	277	The ID of the approval process.
CurrentHandlers	Array of CurrentHandler		The information of the reviewer.

Parameter	Type	Example	Description
CurrentHandler			
Id	Long	1	The ID of the user.
NickName	String	nickName	The name of the user.
Description	String	test	The description of the approval process.
OrderId	Long	1234	The ID of the ticket.
OrderType	String	DATA_EXPORT	The type of the ticket.
ReasonList	List	["reason1"]	The reason for the review result.
Title	String	Data export ticket-1234	The title of the approval process.
WorkflowInsCode	String	APPROVED	The status code of the approval process.
WorkflowNodes	Array of WorkflowNode		The details of approval nodes.
WorkflowNode			
AuditUserIdList	List	104442	The IDs of reviewers.
NodeName	String	DBA	The name of the approval node.
OperateComment	String	Reason: approved	The remarks of the review.
OperateTime	String	2019-10-15 13:47:54	The time when the ticket was reviewed.
OperatorId	Long	13434	The ID of the reviewer.
WorkflowInsCode	String	APPROVED	The status code of the approval process.
ErrorCode	String	UnknownError	The returned error code.

Parameter	Type	Example	Description
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetApprovalDetail
&Tid=-1
&WorkflowInstanceId=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ApprovalDetail>
    <Description>xxx</Description>
    <WorkflowInsCode>APPROVED</WorkflowInsCode>
    <CurrentHandlers>
    </CurrentHandlers>
    <OrderId>737047</OrderId>
    <OrderType>DATA_EXPORT</OrderType>
    <ReasonList>
        <Reasons>xxx</Reasons>
    </ReasonList>
    <AuditId>277</AuditId>
    <Title>Data export ticket-737047</Title>
    <WorkflowNodes>
        <WorkflowNode>
            <OperatorId>104442</OperatorId>
            <WorkflowInsCode>APPROVED</WorkflowInsCode>
            <OperateComment>Reason: approved</OperateComment>
            <AuditUserIdList>
                <AuditUserIds>104442</AuditUserIds>
            </AuditUserIdList>
            <OperateTime>2019-10-15 13:47:54</OperateTime>
            <NodeName>DBA</NodeName>
        </WorkflowNode>
    </WorkflowNodes>
</ApprovalDetail>
<RequestId>FE8EE2F1-4880-46BC-A704-5CF63EAF9A04</RequestId>
<Success>true</Success>
```

`JSON` format


```
{
  "ApprovalDetail": {
    "Description": "xxx",
    "WorkflowInsCode": "APPROVED",
    "CurrentHandlers": {
      "CurrentHandler": []
    },
    "OrderId": 737047,
    "OrderType": "DATA_EXPORT",
    "ReasonList": {
      "Reasons": [
        "xxx"
      ]
    },
    "AuditId": 277,
    "Title": "Data export ticket-737047",
    "WorkflowNodes": {
      "WorkflowNode": [
        {
          "OperatorId": 104442,
          "WorkflowInsCode": "APPROVED",
          "OperateComment": "Reason: approved",
          "AuditUserIdList": {
            "AuditUserIds": [
              104442
            ]
          },
          "OperateTime": "2019-10-15 13:47:54",
          "NodeName": "DBA"
        }
      ]
    }
  },
  "RequestId": "FE8EE2F1-4880-46BC-A704-5CF63EAF9A04",
  "Success": true
}
```


13.1.2.7.1.4. GetOrderBaseInfo

Queries the basic information about a ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetOrderBaseInfo	The operation that you want to perform. Set the value to **GetOrderBaseInfo**.

Parameter	Type	Required	Example	Description
OrderId	Long	Yes	12345	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
OrderBaseInfo	Struct		The basic information about the ticket.
Comment	String	test	The remarks.
Committer	String	xxx	The applicant.
CommitterId	Long	1	The ID of the applicant. Note: The ID is different from the Apsara Stack tenant account ID of the applicant.
CreateTime	String	2019-10-10 00:00:00	The time when the ticket was created.
LastModifyTime	String	2019-10-10 00:00:00	The last time when the ticket was modified.
OrderId	Long	12345	The ID of the ticket.
PluginType	String	DC_COMMON	The type of the ticket. For more information, see the "Request parameters" section of the **CreateOrder** topic.
RelatedUserList	List	1,2,3	The IDs of the operators that are related to the ticket.

Parameter	Type	Example	Description
RelatedUserNickList	List	a,b,c	The names of the operators that are related to the ticket.
StatusCode	String	success	The status code of the ticket. Valid values: • new: The ticket is created. • toaudit: The ticket is being reviewed. • Approved: The ticket is approved. • reject: The ticket is rejected. • processing: The request to create the ticket is being processed. • success: The request to create the ticket is processed. • closed: The ticket is closed.
StatusDesc	String	success	The description of the status.
WorkflowInstanceId	Long	1	The ID of the approval process.
WorkflowStatusDesc	String	approved	The description of the approval process.
RequestId	String	7133DF67-5B25-460F-8285-C4CC93472C2F	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetOrderBaseInfo
&OrderId=12345
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<OrderBaseInfo>
    <Comment>test</Comment>
    <CreateTime>2019-10-10 00:00:00</CreateTime>
    <LastModifyTime>2019-10-10 00:00:00</LastModifyTime>
    <OrderId>12345</OrderId>
    <CommitterId>1</CommitterId>
    <PluginType>DC_COMMON</PluginType>
    <StatusCode>success</StatusCode>
    <RelatedUserNickList>
        <UserNicks>a,b,c</UserNicks>
    </RelatedUserNickList>
    <StatusDesc>success</StatusDesc>
    <WorkflowStatusDesc>approved</WorkflowStatusDesc>
    <WorkflowInstanceId>1</WorkflowInstanceId>
    <Committer>xxx</Committer>
    <RelatedUserList>
        <UserIds>1,2,3</UserIds>
    </RelatedUserList>
</OrderBaseInfo>
<RequestId>7133DF67-5B25-460F-8285-C4CC93472C2F</RequestId>
<ErrorCode>UnknownError</ErrorCode>
<ErrorMessage>UnknownError</ErrorMessage>
<Success>true</Success>
```

`JSON` format

```
{"OrderBaseInfo":{"Comment":"test","CreateTime":"2019-10-10 00:00:00","LastModifyTime":"2019-10-10 00:00:00","OrderId":"12345","CommitterId":"1","PluginType":"DC_COMMON","StatusCode":"success","RelatedUserNickList":{"UserNicks":"a,b,c"},"StatusDesc":"success","WorkflowStatusDesc":"approved","WorkflowInstanceId":"1","Committer":"xxx","RelatedUserList":{"UserIds":"1,2,3"}},"RequestId":"7133DF67-5B25-460F-8285-C4CC93472C2F","ErrorCode":"UnknownError","ErrorMessage":"UnknownError","Success":"true"}
```

13.1.2.7.1.5. ListOrders

Queries the details of tickets.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListOrders	The operation that you want to perform. Set the value to **ListOrders**.
Tid	Long	No	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description
PluginType	String	No	DC_COMMON	The type of tickets. Valid values: • PERM_APPLY: the tickets that are used to apply for permissions. • OWNER_APPLY: the tickets that are used to assume the ownership of resources. • DATA_CORRECT: the tickets that are used to change data. • NDDL: the tickets that are used to change the schema design of databases. • DATA_TRACK: the tickets that are used to trace data. • TABLE_SYNC: the tickets that are used to synchronize databases or tables. • DATA_EXPORT: the tickets that are used to export data. • SENSITIVITY: the tickets that are used to change the level of sensitive columns.
OrderResultType	String	No	AS_ADMIN	The range of tickets to be queried. Valid values: • AS_ADMIN: all tickets. • AS_COMMITTER: the tickets that are submitted by the current user. • AS_HANDLER: the tickets to be processed by the current user. • AS_OWNER: the tickets that are processed by the current user. • AS_Related: the tickets that are related to the current user.
SearchDateType	String	No	CREATE_TIME	The time condition. Valid values: • CREATE_TIME: the time when tickets are created. • MODIFY_TIME: the time when tickets are modified.
StartTime	String	No	2019-10-10 00:00:00	The start of the time range.
EndTime	String	No	2019-10-10 00:00:00	The end of the time range.

Parameter	Type	Required	Example	Description
SearchContent	String	No	test	The keyword that is used to search for tickets.
OrderStatus	String	No	ALL	The status of tickets. Valid values: • ALL: The tickets of all statuses are included. • FINISHED: The tickets are completed. • RUNNING: The tickets are being processed.
PageSize	Integer	No	10	The number of entries to return on each page.
PageNumber	Integer	No	1	The number of the page to return.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
Orders	Array of Order		The details about the tickets.
Order			
Comment	String	test	The remarks of the ticket.
Committer	String	test	The user who submitted the ticket.
CommitterId	Long	1	The ID of the user who submitted the ticket.
CreateTime	String	2019-10-10 00:00:00	The time when the ticket was created.
LastModifyTime	String	2019-10-10 00:00:00	The last time when the ticket was modified.

Parameter	Type	Example	Description
OrderId	Long	1432	The ID of the ticket.
PluginType	String	DC_COMMON	The type of the ticket.
StatusCode	String	success	The status of the ticket.
StatusDesc	String	success	The status description of the ticket.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	100	The total number of entries that are returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListOrders
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>5</TotalCount>
<RequestId>7AC17A86-9E6F-484B-AE8D-F9416986A108</RequestId>
<Orders>
    <Order>
        <StatusCode>success</StatusCode>
        <PluginType>DC_COMMON</PluginType>
        <Committer>xxx[RAM user]</Committer>
        <StatusDesc>Data is changed.</StatusDesc>
        <LastModifyTime>2019-11-19 13:53:05</LastModifyTime>
        <CreateTime>2019-11-19 13:52:36</CreateTime>
        <OrderId>737160</OrderId>
        <Comment>A test ticket that is used to change data</Comment>
        <CommitterId>104442</CommitterId>
    </Order>
    <Order>
        <StatusCode>new</StatusCode>
        <PluginType>DC_COMMON</PluginType>
        <Committer>xxx[RAM user]</Committer>
```

```
        <StatusDesc>The ticket is to be submitted for approval.</StatusDesc>
        <LastModifyTime>2019-10-29 20:51:37</LastModifyTime>
        <CreateTime>2019-10-29 20:51:36</CreateTime>
        <OrderId>737116</OrderId>
        <Comment>Create a test ticket to change data</Comment>
        <CommitterId>104442</CommitterId>
    </Order>
    <Order>
        <StatusCode>closed</StatusCode>
        <PluginType>DC_COMMON</PluginType>
        <Committer>xxx[RAM user]</Committer>
        <StatusDesc>The ticket is closed: Database-level operations are not supported.</Sta
tusDesc>
        <LastModifyTime>2019-10-20 22:09:38</LastModifyTime>
        <CreateTime>2019-10-20 22:08:19</CreateTime>
        <OrderId>737089</OrderId>
        <Comment>The test ticket that is used to create a database</Comment>
        <CommitterId>104442</CommitterId>
    </Order>
    <Order>
        <StatusCode>new</StatusCode>
        <PluginType>DC_COMMON</PluginType>
        <Committer>xxx[RAM user]</Committer>
        <StatusDesc>Failed to perform the pre-check.</StatusDesc>
        <LastModifyTime>2019-09-30 16:58:35</LastModifyTime>
        <CreateTime>2019-09-30 16:58:34</CreateTime>
        <OrderId>737016</OrderId>
        <Comment>Test</Comment>
        <CommitterId>104442</CommitterId>
    </Order>
    <Order>
        <StatusCode>success</StatusCode>
        <PluginType>DC_COMMON</PluginType>
        <Committer>xxx[RAM user]</Committer>
        <StatusDesc>Data is changed.</StatusDesc>
        <LastModifyTime>2019-08-17 14:07:54</LastModifyTime>
        <CreateTime>2019-08-17 14:07:42</CreateTime>
        <OrderId>736774</OrderId>
        <Comment>The ticket that is used to change common data</Comment>
        <CommitterId>104442</CommitterId>
    </Order>
</Orders>
<Success>true</Success>
```

`JSON` format

```
{
  "TotalCount": 5,
  "RequestId": "7AC17A86-9E6F-484B-AE8D-F9416986A108",
  "Orders": {
    "Order": [
      {
        "StatusCode": "success",
        "PluginType": "DC_COMMON",
```

```
        "Committer": "xxx[RAM user]"
        "StatusDesc": "Data is changed.",
        "LastModifyTime": "2019-11-19 13:53:05",
        "CreateTime": "2019-11-19 13:52:36",
        "OrderId": 737160,
        "Comment": "The test ticket that is used to change data",
        "CommitterId": 104442
      },
      {
        "StatusCode": "new",
        "PluginType": "DC_COMMON",
        "Committer": "xxx[RAM user]"
        "StatusDesc": "The ticket is to be submitted for approval.",
        "LastModifyTime": "2019-10-29 20:51:37",
        "CreateTime": "2019-10-29 20:51:36",
        "OrderId": 737116,
        "Comment": "Create a test ticket to change data",
        "CommitterId": 104442
      },
      {
        "StatusCode": "closed",
        "PluginType": "DC_COMMON",
        "Committer": "xxx[RAM user]"
        "StatusDesc": "The ticket is closed: Database-level operations are not supported.",
        "LastModifyTime": "2019-10-20 22:09:38",
        "CreateTime": "2019-10-20 22:08:19",
        "OrderId": 737089,
        "Comment": "A test ticket that is used to create a database",
        "CommitterId": 104442
      },
      {
        "StatusCode": "new",
        "PluginType": "DC_COMMON",
        "Committer": "xxx[RAM user]"
        "StatusDesc": "Failed to perform the pre-check.",
        "LastModifyTime": "2019-09-30 16:58:35",
        "CreateTime": "2019-09-30 16:58:34",
        "OrderId": 737016,
        "Comment": "Test",
        "CommitterId": 104442
      },
      {
        "StatusCode": "success",
        "PluginType": "DC_COMMON",
        "Committer": "xxx[RAM user]"
        "StatusDesc": "Data is changed.",
        "LastModifyTime": "2019-08-17 14:07:54",
        "CreateTime": "2019-08-17 14:07:42",
        "OrderId": 736774,
        "Comment": "The ticket that is used to change common data",
        "CommitterId": 104442
      }
    ]
  },
```

```
  "Success": true
}
```

13.1.2.7.1.6. SubmitOrderApproval

Submits a ticket for approval.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SubmitOrderApproval	The operation that you want to perform. Set the value to **SubmitOrderApproval**.
OrderId	Long	Yes	12345	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SubmitOrderApproval
&OrderId=12345
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>7AC17A86-9E6F-484B-AE8D-F9416986A108</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "7AC17A86-9E6F-484B-AE8D-F9416986A108",
  "Success": true
}
```

13.1.2.7.1.7. CreateOrder

Creates a ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateOrder	The operation that you want to perform. Set the value to **CreateOrder**.
Comment	String	Yes	test	The description of the ticket.
PluginParam	Json	Yes	{}	The parameter that is used to create a ticket. This parameter consists of a set of parameters that are included in a JSON string. The settings of these parameters are subject to the type of the ticket. For more information, see the "Instructions for the PluginParam parameter" section.

Parameter	Type	Required	Example	Description
PluginType	String	Yes	DATA_EXPORT	The type of the ticket. Valid values: • DC_COMMON: a ticket that is used to change common data. • DC_CHUNK: a ticket that is used to change lock-free data. • DC_CRON_CLEAR: a ticket that is used to change historical data. • NDDL: a ticket that is used to change the schema design. • DATA_EXPORT: a ticket that is used to export data. • PERM_APPLY: a ticket that is used to request a permission. • OWNER_APPLY: a ticket that is used to request the ownership of a resource.
RelatedUserList	String	Yes	1,2,3	The IDs of the operators that are related to the ticket. Separate multiple IDs with commas (,).
Tid	Long	No	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Instructions for the PluginParam parameter

```
json
# Change common data
"pluginParam" : {
    "classify" : "Test", // The classification of the reason.
    "estimateAffectRows" : 1, // The estimated number of affected rows.
    "execSql" : "update base_op_log set id=1 where id=1;", // The SQL statement to be execu
ted.
    "dbItemList" : [ { // The details of databases on which the operation is performed.
      "dbId" : 179694,
      "logic" : false
    } ],
    "rbSQL" : "update base_op_log set id=1 where id=1;", // The SQL statement to run for ro
llback.
    "rbAttachmentName" : null, // The attachment of the SQL statement to run for rollback.
    "sqlType" : "TEXT", // The type of the SQL file to run for data change. Valid values: T
EXT and ATTACHMENT.
    "rbSQLType" : "TEXT", // The type of the SQL file to run for rollback. Valid values: TE
XT and ATTACHMENT.
    "attachmentName" : // The attachment of the SQL statement to run for data change.
  }
# Change lock-free data
"pluginParam" : {
    "Classify":"Test"
    "execSQL" : "update base_op_log set op_type=op_type where 1=1;", // The SQL statement t
o be executed.
    "dbItemList" : [ {
      "dbId": 179719, // The ID of the database from which data is exported.
      "logic" : false
    } ]
  }
# Clear historical data
"pluginParam" : {
    "duration" : 10, // The duration. Unit: hours. Default value: 0.
    "specifyDuration" : true, // Specifies whether to set a duration. Valid values: true (y
es) and false (no). Default value: false.
    "Classify":"Test"
    "cronFormat" : "0 1 21 * * ?", // The expression that is used to schedule the execution
of the operation.
    "execSql" : null,
    "dbItemList" : [ {
      "dbId": 179719, // The ID of the database on which the operation is performed.
      "logic" : false
    } ],
    "cronClearItemList" : [ {
      "filterSQL" : null, // The filter conditions.
      "columnName" : "gmt_create", // The time field.
      "remainDays" : 60, // The retention period.
      "tableName" : "base_app" // The table name.
    } ]
  }
```

```
json
# Change the schema design
"pluginParam": {
    "title": "test", // The title.
    "description": "test", // The description.
    "dbId": 118989, // The ID of the required database.
    "logic": false, // Specifies whether the database is a logical database.
    "relatedIds": [], // The IDs of operators that are related to the change.
  }
```

```
json
# Export data
"pluginParam" : {
  "classify": "Classification of the reason", // The classification of the reason.
  "dbId": 179719, // The ID of the database from which data is exported.
  "exeSQL": "select 1", // Export data by using the SQL statement.
  "logic": false, // Specifies whether the database is a logical database.
  "ignoreAffectRows": false, // Specifies whether to ignore the affected rows.
  "affectRows": 1, // The estimated number of affected rows.
  "ignoreAffectRowsReason": "" // Specifies whether to ignore the affected rows.
 }
```

Response parameters

Parameter	Type	Example	Description
CreateOrderResult	List	123	The ID of the ticket that is created.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the call succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateOrder
&Comment=test
&PluginParam={}
&PluginType=DATA_EXPORT
&RelatedUserList=1,2,3
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D</RequestId>
<CreateOrderResult>
    <OrderIds>123</OrderIds>
</CreateOrderResult>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D",
  "CreateOrderResult": {
    "OrderIds": [123]
  },
  "Success": true
}
```

13.1.2.7.2. Data changes

13.1.2.7.2.1. ExecuteDataCorrect

Creates a ticket to modify data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ExecuteDataCorrect	The operation that you want to perform. Set the value to **ExecuteDataCorrect**.
OrderId	Long	Yes	123	The ID of the ticket.
Tid	String	No	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description

ActionDetail	Json	No	{ "startTime" : null, "endTime" : null, "transaction" : false, "backupData" : true }	The parameters that are required to perform the operation.
				json
				"actionDetail" : {
				"startTime" : null, // The start of the required time range. If you want to immediately modify data , you do not need to set the parameter.
				"endTime" : null, // The end of the required time range. If you want to immediately modify data , you do not need to set the parameter.
				"transaction" : false, // Specifies whether to run the modification task as a transaction.
				"backupData" : true // Specifies whether to back up data.
				}

RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ExecuteDataCorrect
&OrderId=123
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>7133DF67-5B25-460F-8285-C4CC93472C2F</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "7133DF67-5B25-460F-8285-C4CC93472C2F",
  "Success": true
}
```

13.1.2.7.2.2. GetDataCorrectBackupFiles

Queries the download URL of an attachment that includes the backup files of data changes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetDataCorrectBackupFiles	The operation that you want to perform. Set the value to **GetDataCorrectBackupFiles**.

Parameter	Type	Required	Example	Description
OrderId	Long	Yes	12345	The ID of the ticket.
Tid	Long	No	-1	The ID of the tenant.
ActionDetail	Json	No	{}	The parameters that are required to perform the operation. You do not need to specify this parameter.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DataCorrectBackupFiles	List	xxx	The download URL of the attachment that includes backup files.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetDataCorrectBackupFiles
&OrderId=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DataCorrectBackupFiles>
    <FileUrl>https://xxx.oss-cn-hangzhou.aliyuncs.com/xxx.zip?Expires=1574382979&amp;OSSAcc
essKeyId=wSa97B52GzF4fGqu&amp;Signature=ykWSysajKcQjXjG0X4ApOQvlIXQ%3D</FileUrl>
</DataCorrectBackupFiles>
<RequestId>4AFF4109-FEFB-44E8-96A3-923B1FA8C46E</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "DataCorrectBackupFiles": {
    "FileUrl": [
      "https://xxx.oss-cn-hangzhou.aliyuncs.com/xxx.zip?Expires=1574382979&OSSAccessKeyId=w
Sa97B52GzF4fGqu&Signature=ykWSysajKcQjXjG0X4ApOQvlIXQ%3D"
    ]
  },
  "RequestId": "4AFF4109-FEFB-44E8-96A3-923B1FA8C46E",
  "Success": true
}
```

13.1.2.7.2.3. GetDataCorrectOrderDetail

Queries the details about a ticket that is used to modify data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetDataCorrectOrderDetail	The operation that you want to perform. Set the value to **GetDataCorrectOrderDetail**.
OrderId	Long	Yes	12345	The ID of the ticket.
Tid	Long	No	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DataCorrectOrderDetail	Struct		The details about the ticket.

Parameter	Type	Example	Description
DatabaseList	Array of Database		The details about the database whose data is modified.
Database			
DbId	Integer	123456	The ID of the database.
DbType	String	mysql	The type of the database.
EnvType	String	product	The type of the environment to which the database belongs.
Logic	Boolean	false	Indicates whether the database is a logical database.
SearchName	String	xxx@xxx:3306	The name that is used to search for the logical database.
OrderDetail	Struct		The details about the ticket.
ActualAffectRows	Long	100	The number of rows that are affected by the system check.
AttachmentName	String	xxx	The attachment that includes the executed SQL statement.
Classify	String	test	The category of the reason for the data change.
EstimateAffectRows	Long	100	The estimated number of affected rows.
ExeSQL	String	update t1 set name = 'xxx' where id <= 100	The SQL statement that is executed.
IgnoreAffectRows	Boolean	false	Indicates whether the pre-check is ignored.
IgnoreAffectRowsReason	String	test	The reason why the pre-check is ignored.

Parameter	Type	Example	Description
RbAttachmentName	String	test	The attachment that includes the SQL statement used to roll back the updated data.
RbSQL	String	empty	The SQL statement that is specified to roll back the updated data.
RbSQLType	String	text	The type of the attachment file. Valid values: • TEXT • ATTACHMENT
SqlType	String	text	The type of the SQL statement. Valid values: • TEXT • ATTACHMENT
PreCheckDetail	Array of TaskCheckDO		The details about the precheck task.
TaskCheckDO			
CheckStatus	String	SUCCESS	The status of the precheck task. Valid values: • WAITING: The ticket is pending check. • RUNNING: The ticket is being checked. • SUCCESS: The ticket is checked. • FAIL: The ticket fails to be checked.
CheckStep	String	PERMISSION_CHECK	The check step. Valid values: • SQL_PARSE: The system parses the SQL statement. • SQL_TYPE_CHECK: The system checks the type of the SQL statement. • PERMISSION_CHECK: The system checks the permissions of the SQL statement. • ROW_CHECK: The system checks the number of rows.
UserTip	String	tip messsage	The message that appears when a check step is executed.

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetDataCorrectOrderDetail
&OrderId=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>ACE263E5-CF5F-44DD-A7B1-42C5E78E9650</RequestId>
<DataCorrectOrderDetail>
    <PreCheckDetail>
        <TaskCheckDO>
            <CheckStatus>SUCCESS</CheckStatus>
            <CheckStep>SQL_PARSE</CheckStep>
        </TaskCheckDO>
        <TaskCheckDO>
            <CheckStatus>SUCCESS</CheckStatus>
            <CheckStep>SQL_TYPE_CHECK</CheckStep>
        </TaskCheckDO>
        <TaskCheckDO>
            <CheckStatus>SUCCESS</CheckStatus>
            <CheckStep>PERMISSION_CHECK</CheckStep>
        </TaskCheckDO>
        <TaskCheckDO>
            <CheckStatus>SUCCESS</CheckStatus>
            <UserTip>This is a statistical value that is generated by the system. The actua
l number of affected rows is subject to the SQL statement that is executed.</UserTip>
            <CheckStep>ROW_CHECK</CheckStep>
        </TaskCheckDO>
    </PreCheckDetail>
    <OrderDetail>
        <ActualAffectRows>0</ActualAffectRows>
        <RbSQLType>TEXT</RbSQLType>
        <ExeSQL>update base_user set id = 1 where id = 1;</ExeSQL>
        <EstimateAffectRows>1</EstimateAffectRows>
        <SqlType>TEXT</SqlType>
        <Classify>test</Classify>
        <IgnoreAffectRowsReason/>
    </OrderDetail>
</DataCorrectOrderDetail>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "ACE263E5-CF5F-44DD-A7B1-42C5E78E9650",
  "DataCorrectOrderDetail": {
    "PreCheckDetail": {
      "TaskCheckDO": [
        {
          "CheckStatus": "SUCCESS",
          "CheckStep": "SQL_PARSE"
        },
        {
          "CheckStatus": "SUCCESS",
          "CheckStep": "SQL_TYPE_CHECK"
        },
        {
          "CheckStatus": "SUCCESS",
          "CheckStep": "PERMISSION_CHECK"
        },
        {
          "CheckStatus": "SUCCESS",
          "UserTip": "This is a statistical value that is generated by the system. The actu
al number of affected rows is subject to the SQL statement that is executed.",
          "CheckStep": "ROW_CHECK"
        }
      ]
    },
    "OrderDetail": {
      "ActualAffectRows": 0,
      "RbSQLType": "TEXT",
      "ExeSQL": "update base_user set id = 1 where id = 1;",
      "EstimateAffectRows": 1,
      "SqlType": "TEXT",
      "Classify": "test",
      "IgnoreAffectRowsReason": ""
    }
  },
  "Success": true
}
```


13.1.2.7.3. Schema design

13.1.2.7.3.1. CreatePublishGroupTask

Creates a ticket to modify the schema design of a database.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreatePublishGroupTask	The operation that you want to perform. Set the value to **CreatePublishGroupTask**.
DbId	Integer	Yes	12345	The ID of the database for which you want to modify the schema design.
Logic	Boolean	Yes	false	Specifies whether the database is a logical database.
OrderId	Long	Yes	142435	The ID of the ticket.
PublishStrategy	String	Yes	IMMEDIATELY	The policy to modify the schema design. Valid values: • IMMEDIATELY: immediately modifies the schema design. • REGULARLY: modifies the schema design at a scheduled time.
Tid	Long	Yes	-1	The ID of the tenant.
PlanTime	String	No	2019-10-10 00:00:00	The time to modify the schema design.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Parameter	Type	Example	Description
TaskId	Long	413452	The ID of the task.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreatePublishGroupTask
&DbId=12345
&Logic=false
&OrderId=142435
&PublishStrategy=IMMEDIATELY
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>78C93646-D9B1-4E6E-B5FD-C69F94A7905A</RequestId>
<Success>true</Success>
<TaskId>13424</TaskId>
```

`JSON` format

```
{
  "RequestId": "78C93646-D9B1-4E6E-B5FD-C69F94A7905A",
  "Success": true,
  "TaskId": 13424
}
```

13.1.2.7.4. Data export

13.1.2.7.4.1. ExecuteDataExport

Executes a ticket to export data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ExecuteDataExport	The operation that you want to perform. Set the value to **ExecuteDataExport**.

Parameter	Type	Required	Example	Description

ActionDetail	Json	Yes	{"fileType": "CSV", "encoding": ""}	The parameters that are required to perform the operation:
				json
				{
				"fileType": "CSV", // The format of the file to which the data is exported.
				"encoding": "" // The encoding of the file.
				}

OrderId	Long	Yes	1234	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	FE8EE2F1-4880-46BC-A704-5CF63EAF9A04	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?ActionDetail={    "fileType": "CSV",    "encoding": ""  }
&OrderId=1234
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>FE8EE2F1-4880-46BC-A704-5CF63EAF9A04</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "FE8EE2F1-4880-46BC-A704-5CF63EAF9A04",
  "Success": true
}
```

13.1.2.7.4.2. GetDataExportDownloadURL

Queries the download URL of the file that includes export results for a data export ticket.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetDataExportDownloadURL	The operation that you want to perform. Set the value to **GetDataExportDownloadURL**.
OrderId	Long	Yes	12345	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DownloadURLResult	Struct		The details about the file that includes export results.
HasResult	Boolean	true	Indicates whether a file is available for download.
TipMessage	String	tip message	The message that indicates an exception.
URL	String	xxx	The download URL of the file that includes export results.

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetDataExportDownloadURL
&OrderId=12345
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DownloadURLResult>
    <URL>https://dms-idb-hangzhou.oss-cn-hangzhou.aliyuncs.com/xxx.zip?Expires=1574384313&amp;OSSAccessKeyId=wSa97B52GzF4fGqu&amp;Signature=HQQWBRSKiVV6cupugh1/eAVSqXg%3D</URL>
    <HasResult>true</HasResult>
</DownloadURLResult>
<RequestId>4BF24EA5-9013-4C85-AE68-6C23AF5E0097</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "DownloadURLResult": {
    "URL": "https://dms-idb-hangzhou.oss-cn-hangzhou.aliyuncs.com/xxx.zip?Expires=1574384313&OSSAccessKeyId=wSa97B52GzF4fGqu&Signature=HQQWBRSKiVV6cupugh1/eAVSqXg%3D",
    "HasResult": true
  },
  "RequestId": "4BF24EA5-9013-4C85-AE68-6C23AF5E0097",
  "Success": true
}
```

13.1.2.7.4.3. GetDataExportOrderDetail

Queries the details about a ticket that is used to export data.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	GetDataExportOrderDetail	The operation that you want to perform. Set the value to **GetDataExportOrderDetail**.
OrderId	Long	Yes	123456	The ID of the ticket.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
DataExportOrderDetail	Struct		The details about the ticket.
KeyInfo	Struct		The status information.

Parameter	Type	Example	Description
JobStatus	String	EXPORT_SUCCESS	The status of the ticket. Valid values: • PRE_CHECKING: The ticket is being pre-checked. • PRE_CHECK_SUCCESS: The ticket is pre-checked. • PRE_CHECK_FAIL: The ticket fails to be pre-checked. • WAITING_APPLY_AUDIT: The ticket is being submitted for approval. • APPLY_AUDIT_SUCESS: The ticket is submitted for approval. • ENABLE_EXPORT: The ticket is approved. Data can be exported. • WAITING_EXPORT: The data is pending export. • DOING_EXPORT: The data is being exported. • EXPORT_FAIL: The data fails to be exported. • EXPORT_SUCCESS: The data is exported.
PreCheckId	Long	123	The ID of the precheck task.
OrderDetail	Struct		The details about the ticket.
ActualAffectRows	Long	1	The number of rows that are affected by the system check.
Classify	String	text	The category of the reason for the data export.
Database	String	xxx@xxx:3306	The database from which data is exported.
DbId	Integer	123	The ID of the database.
EnvType	String	test	The type of the environment to which the database belongs.
ExeSQL	String	select 1	The SQL statement that is executed to export data.

Parameter	Type	Example	Description
IgnoreAffectRows	Boolean	false	Indicates whether the affected rows are skipped.
IgnoreAffectRowsReason	String	empty	The reason why the pre-check is skipped.
Logic	Boolean	false	Indicates whether the database is a logical database.
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	427688B8-ADFB-4C4E-9D45-EF5C1FD6E23D	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GetDataExportOrderDetail
&OrderId=123456
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DataExportOrderDetail>
    <KeyInfo>
        <PreCheckId>15544</PreCheckId>
        <JobStatus>EXPORT_SUCCESS</JobStatus>
    </KeyInfo>
    <OrderDetail>
        <Logic>false</Logic>
        <ActualAffectRows>1</ActualAffectRows>
        <ExeSQL>select 1;</ExeSQL>
        <Database>yuyang_test@xxx:3306[yuyang_test_xxx]China (Hangzhou) non-modular databas
e</Database>
        <IgnoreAffectRows>false</IgnoreAffectRows>
        <DbId>116367</DbId>
        <Classify>Test</Classify>
        <EnvType>product</EnvType>
    </OrderDetail>
</DataExportOrderDetail>
<RequestId>78C93646-D9B1-4E6E-B5FD-C69F94A7905A</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "DataExportOrderDetail": {
    "KeyInfo": {
      "PreCheckId": 15544,
      "JobStatus": "EXPORT_SUCCESS"
    },
    "OrderDetail": {
      "Logic": false,
      "ActualAffectRows": 1,
      "ExeSQL": "select 1;",
      "Database": <Database>yuyang_test@xxx:3306[yuyang_test_xxx]China (Hangzhou) non-modul
ar database</Database>
      "IgnoreAffectRows": false,
      "DbId": 116367,
      "Classify": "Test",
      "EnvType": "product"
    }
  },
  "RequestId": "78C93646-D9B1-4E6E-B5FD-C69F94A7905A",
  "Success": true
}
```

13.1.2.8. Permission management

13.1.2.8.1. RevokeUserPermission

Revokes the permissions on a specified resource from a user.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RevokeUserPermission	The operation that you want to perform. Set the value to **RevokeUserPermission**.
DbId	String	Yes	142345	The ID of the database.
DsType	String	Yes	DATABASE	The type of resources. For more information, see the description of the **GrantUserPermission** operation.
PermTypes	String	Yes	QUERY	The type of permissions. For more information, see the description of the **GrantUserPermission** operation.
Tid	Long	Yes	-1	The ID of the tenant.
UserAccessId	String	Yes	123	The ID of the user permission.
UserId	String	Yes	1234	The ID of the user. You can call the **GetUser** operation to obtain the ID. **Note** The ID is different from the ID of the Apsara Stack tenant account of the user.
Logic	Boolean	No	false	Specifies whether the database is a logical database. Valid values: • true • false
TableId	String	No	1342345	The ID of the table. This parameter is required if you grant permissions on a table to a user.
TableName	String	No	table_name	The name of the table. This parameter is required if you grant permissions on a table to a user.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	A99CD576-1E18-4E86-931E-C3CCE56DC030	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RevokeUserPermission
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>A99CD576-1E18-4E86-931E-C3CCE56DC030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "A99CD576-1E18-4E86-931E-C3CCE56DC030",
  "Success": true
}
```

13.1.2.8.2. ListDatabaseUserPermssions

Queries the permissions of users on a database.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListDatabaseUserPermssions	The operation that you want to perform. Set the value to **ListDatabaseUserPermssions**.

Parameter	Type	Required	Example	Description
DbId	String	Yes	123	The ID of the database.
PermType	String	Yes	DATABASE	The type of the permission. Valid values: • DATABASE: permissions on databases. • TABLE: permissions on tables. • COLUMN: permissions on columns.
Tid	Long	Yes	-1	The ID of the tenant.
Logic	Boolean	No	false	Specifies whether the database is a logical database.
UserName	String	No	search_user_name	The nickname of the user.
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	68075D06-7406-4887-83A7-F558A4D28C13	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeds.

Parameter	Type	Example	Description
TotalCount	Long	1	The total number of entries that meet the query conditions.
UserPermissions	Array of UserPermission		The details of user permissions.
UserPermission			
Alias	String	instance_alias	The alias of the instance.
ColumnName	String	column_name	The name of the field.
DbId	String	1234	The ID of the database.
DbType	String	mysql	The type of the database.
DsType	String	DATABASE	The type of resources on which the user has permissions.
EnvType	String	product	The type of the environment to which the database belongs.
InstanceId	String	1443	The ID of the instance.
Logic	Boolean	false	Specifies whether the database is a logical database.
PermDetails	Array of PermDetail		The details of permissions.
PermDetail			
CreateDate	String	2019-12-12 00:00:00	The time when the permission was created.
ExpireDate	String	2020-12-12 00:00:00	The time when the permission expires.
ExtraData	String	DEFAULT	The extra information. This parameter is reserved.
OriginFrom	String	xxx grant	The entity that authorizes the permission.

Parameter	Type	Example	Description
PermType	String	QUERY	The type of the permission. Valid values: • QUERY: the query permission. • EXPORT: the export permission. • CORRECT: the change permission.
UserAccessId	String	13434	The ID of the authorization record.
SchemaName	String	xxx@xxxx:3306	The name of the schema.
SearchName	String	xxx	The name that is used to search for the database.
TableId	String	42345	The ID of the table.
TableName	String	table_name	The name of the table.
UserId	String	14324	The ID of the user.
UserNickName	String	user_nick_name	The name of the user.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListDatabaseUserPermssions
&DbId=123
&PermType=DATABASE
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UserPermissions>
    <UserPermission>
        <Logic>false</Logic>
        <UserNickName>xxx</UserNickName>
        <DsType>DATABASE</DsType>
        <Alias>beihe_ent_prod</Alias>
        <PermDetails>
            <PermDetail>
                <ExpireDate>2020-10-31 00:00:00</ExpireDate>
                <UserAccessId>390915</UserAccessId>
                <PermType>QUERY</PermType>
                <OriginFrom>xxx</OriginFrom>
                <CreateDate>2019-11-21 15:07:45</CreateDate>
            </PermDetail>
            <PermDetail>
                <ExpireDate>2020-10-31 00:00:00</ExpireDate>
                <UserAccessId>390916</UserAccessId>
                <PermType>EXPORT</PermType>
                <OriginFrom>xxx</OriginFrom>
                <CreateDate>2019-11-21 15:07:45</CreateDate>
            </PermDetail>
            <PermDetail>
                <ExpireDate>2020-10-31 00:00:00</ExpireDate>
                <UserAccessId>390917</UserAccessId>
                <PermType>CORRECT</PermType>
                <OriginFrom>xxx</OriginFrom>
                <CreateDate>2019-11-21 15:07:45</CreateDate>
            </PermDetail>
        </PermDetails>
        <InstanceId>1434</InstanceId>
        <SearchName>xxx@xxxx:3306</SearchName>
        <DbId>123434</DbId>
        <UserId>432423</UserId>
        <DbType>drds</DbType>
        <EnvType>product</EnvType>
        <SchemaName>xxx</SchemaName>
    </UserPermission>
</UserPermissions>
<TotalCount>1</TotalCount>
<RequestId>68075D06-7406-4887-83A7-F558A4D28C13</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "UserPermissions": {
    "UserPermission": [
      {
        "Logic": false,
        "UserNickName": "xxx",
        "DsType": "DATABASE",
        "Alias": "beihe_ent_prod",
        "PermDetails": {
          "PermDetail": [
            {
              "ExpireDate": "2020-10-31 00:00:00",
              "UserAccessId": "390915",
              "PermType": "QUERY",
              "OriginFrom": "xxx",
              "CreateDate": "2019-11-21 15:07:45"
            },
            {
              "ExpireDate": "2020-10-31 00:00:00",
              "UserAccessId": "390916",
              "PermType": "EXPORT",
              "OriginFrom": "xxx",
              "CreateDate": "2019-11-21 15:07:45"
            },
            {
              "ExpireDate": "2020-10-31 00:00:00",
              "UserAccessId": "390917",
              "PermType": "CORRECT",
              "OriginFrom": "xxx",
              "CreateDate": "2019-11-21 15:07:45"
            }
          ]
        },
        "InstanceId": 1434,
        "SearchName": "xxx@xxxx:3306",
        "DbId": 123434,
        "UserId": 432423,
        "DbType": "drds",
        "EnvType": "product",
        "SchemaName": "xxx"
      }
    ]
  },
  "TotalCount": 1,
  "RequestId": "68075D06-7406-4887-83A7-F558A4D28C13",
  "Success": true
}
```


13.1.2.8.3. SetOwners

Sets the owners of a database or a table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetOwners	The operation that you want to perform. Set the value to **SetOwners**.
OwnerIds	String	Yes	123, 456	The IDs of the owners. Separate multiple IDs with commas (,).
OwnerType	String	Yes	DATABASE	The type of the owner. Valid values: • DATABASE: an owner of physical databases. • LOGIC_DATABASE: an owner of logical databases. • TABLE: an owner of physical tables. • LOGIC_TABLE: an owner of logical tables.
ResourceId	String	Yes	123	The ID of the resource. The ID is based on the value of the **OwnerType** parameter. Valid values for the **OwnerType** parameter: • DATABASE: physical databases. • LOGIC_DATABASE: logical databases. • TABLE: physical tables. • LOGIC_TABLE: logical tables.
Tid	Long	Yes	-1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	A99CD576-1E18-4E86-931E-C3CCE56DC030	The ID of the request.

Parameter	Type	Example	Description
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetOwners
&OwnerIds=123, 456
&OwnerType=DATABASE
&ResourceId=123
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>A99CD576-1E18-4E86-931E-C3CCE56DC030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "A99CD576-1E18-4E86-931E-C3CCE56DC030",
  "Success": true
}
```

13.1.2.8.4. ListUserPermissions

Queries the permissions of a user on databases and tables.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListUserPermissions	The operation that you want to perform. Set the value to **ListUserPermissions**.
PermType	String	Yes	DATABASE	The type of resources on which the user has permissions. For more information, see **ListDatabaseUserPermssions**.
Tid	Long	Yes	-1	The ID of the tenant.

Parameter	Type	Required	Example	Description
UserId	String	Yes	13435	The ID of the user. The user ID is the same as the user ID that is specfied in the **GetUser** operation. The user ID is different from the ID of your Apsara Stack tenant account.
DatabaseName	String	No	db_name	The name of the database.
Logic	Boolean	No	false	Specifies whether the database is a logical database. Valid values: • true • false
EnvType	String	No	dev	The type of the environment to which the database belongs.
DbType	String	No	MySQL	The type of the database.
PageNumber	Integer	No	1	The number of the page to return
PageSize	Integer	No	1	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	C51420E3-144A-4A94-B473-8662FCF4AD10	The ID of the request.
Success	Boolean	true	Indicates whether the call succeeded.

Parameter	Type	Example	Description
TotalCount	Long	6	The total number of entries that meet the query conditions.
UserPermissions	Array of UserPermission		The details of user permissions.
UserPermission			
Alias	String	instance_alias	The alias of the instance.
ColumnName	String	column_name	The name of the field.
DbId	String	1324	The ID of the database.
DbType	String	mysql	The type of the database.
DsType	String	DATABASE	The type of resources on which the user has permissions.
EnvType	String	dev	The type of the environment to which the database belongs.
InstanceId	String	134	The ID of the instance.
Logic	Boolean	false	Indicates whether the database is a logical database. Valid values: • true • false
PermDetails	Array of PermDetail		The details of permissions.
PermDetail			
CreateDate	String	2019-12-12 00:00:00	The time when the permission was authorized.
ExpireDate	String	2020-12-12 00:00:00	The time when the permission expires.

Parameter	Type	Example	Description
ExtraData	String	xxx	The additional data. This parameter is reserved.
OriginFrom	String	xxx	The entity that authorizes the permission.
PermType	String	QUERY	The type of the permission.
UserAccessId	String	1345	The ID of the authorization record.
SchemaName	String	test_db	The name of a database.
SearchName	String	test_db@xxx:3306	The name that is used to search for the database.
TableId	String	13434	The ID of the table.
TableName	String	test_table	The name of the table.
UserId	String	423245	The ID of the user.
UserNickName	String	nick_name	The name of the user.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListUserPermissions
&PermType=DATABASE
&Tid=-1
&UserId=13435
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UserPermissions>
    <UserPermission>
        <Logic>false</Logic>
        <UserNickName>xxx</UserNickName>
        <DsType>DATABASE</DsType>
        <Alias>xxx_ent_dev</Alias>
        <PermDetails>
            <PermDetail>
                <ExpireDate>2020-10-31 00:00:00</ExpireDate>
                <UserAccessId>390913</UserAccessId>
                <PermType>EXPORT</PermType>
                <OriginFrom>xxx</OriginFrom>
                <CreateDate>2019-11-21 15:07:45</CreateDate>
            </PermDetail>
            <PermDetail>
                <ExpireDate>2020-10-31 00:00:00</ExpireDate>
                <UserAccessId>390914</UserAccessId>
                <PermType>CORRECT</PermType>
                <OriginFrom>xxx</OriginFrom>
                <CreateDate>2019-11-21 15:07:45</CreateDate>
            </PermDetail>
        </PermDetails>
        <InstanceId>24671</InstanceId>
        <SearchName>xxx@xxx:3306</SearchName>
        <DbId>111369</DbId>
        <UserId>88658</UserId>
        <DbType>drds</DbType>
        <EnvType>dev</EnvType>
        <SchemaName>xxx_ent_dev</SchemaName>
    </UserPermission>
</UserPermissions>
<TotalCount>6</TotalCount>
<RequestId>C51420E3-144A-4A94-B473-8662FCF4AD10</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "UserPermissions": {
    "UserPermission": [
      {
        "Logic": false,
        "UserNickName": "xxx",
        "DsType": "DATABASE",
        "Alias": "xxx_ent_dev",
        "PermDetails": {
          "PermDetail": [
            {
              "ExpireDate": "2020-10-31 00:00:00",
              "UserAccessId": "390913",
              "PermType": "EXPORT",
              "OriginFrom": "xxx",
              "CreateDate": "2019-11-21 15:07:45"
            },
            {
              "ExpireDate": "2020-10-31 00:00:00",
              "UserAccessId": "390914",
              "PermType": "CORRECT",
              "OriginFrom": "xxx",
              "CreateDate": "2019-11-21 15:07:45"
            }
          ]
        },
        "InstanceId": 24671,
        "SearchName": "xxx@xxx:3306",
        "DbId": 111369,
        "UserId": 88658,
        "DbType": "drds",
        "EnvType": "dev",
        "SchemaName": "xxx_ent_dev"
      }
    ]
  },
  "TotalCount": 6,
  "RequestId": "C51420E3-144A-4A94-B473-8662FCF4AD10",
  "Success": true
}
```


13.1.2.8.5. GrantUserPermission

Grants permissions on a database or a table to a user.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	GrantUserPermission	The operation that you want to perform. Set the value to **GrantUserPermission**.
DbId	String	Yes	1234	The ID of the database.
DsType	String	Yes	DATABASE	The type of the permissions. Valid values: • DATABASE: permissions on physical databases • LOGIC_DATABASE: permissions on logical databases • TABLE: permissions on physical databases • LOGIC_TABLE: permissions on logical tables
ExpireDate	String	Yes	2019-12-12 00:00:00	The time when the permissions expire.
PermTypes	String	Yes	QUERY, EXPORT, CORRECT	The type of the permission. Separate multiple permission types with commas (,). Valid values: • QUERY: the query permission • EXPORT: the export permission • CORRECT: the change permission
Tid	Long	Yes	-1	The ID of the tenant.
UserId	String	Yes	12345	The ID of the user. You can call the **GetUser** operation to obtain the user ID. The user ID is different from the Apsara Stack tenant account ID of the user.
Logic	Boolean	No	false	Specifies whether the database is a logical database.
TableId	String	No	1324245	The ID of the table. This parameter is required when you grant permissions on a table.

Parameter	Type	Required	Example	Description
TableName	String	No	table_name	The name of the table. This parameter is required when you grant permissions on a table.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	A99CD576-1E18-4E86-931E-C3CCE56DC030	The ID of the request.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=GrantUserPermission
&DbId=1234
&DsType=DATABASE
&ExpireDate=2019-12-12 00:00:00
&PermTypes=QUERY, EXPORT, CORRECT
&Tid=-1
&UserId=12345
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>A99CD576-1E18-4E86-931E-C3CCE56DC030</RequestId>
<Success>true</Success>
```

`JSON` format

```
{
  "RequestId": "A99CD576-1E18-4E86-931E-C3CCE56DC030",
  "Success": true
}
```

13.1.2.9. Security management

13.1.2.9.1. ListSensitiveColumns

Queries sensitive columns.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListSensitiveColumns	The operation that you want to perform. Set the value to **ListSensitiveColumns**.
Tid	Long	Yes	-1	The ID of the tenant.
SchemaName	String	No	test	The name of the database.
TableName	String	No	test	The name of the table.
ColumnName	String	No	test	The name of the column.
SecurityLevel	String	No	SENSITIVE	The sensitivity level of the column. Valid values: • INNER • SENSITIVE • CONFIDENTIAL
PageNumber	Integer	No	1	The number of the page to return.
PageSize	Integer	No	10	The number of entries to return on each page.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	0E714EF1-E617-4BBC-A3D2-9552063BA942	The ID of the request.
SensitiveColumnList	Array of SensitiveColumn		The sensitive columns.
SensitiveColumn			
ColumnCount	Long	1	The number of columns.
ColumnName	String	test	The name of the column.
FunctionType	String	DEFAULT	The type of the desensitization algorithm. Valid values: • DEFAULT: All characters are masked. This is the default value. • FIX_POS: The fixed position is masked. • FIX_CHAR: The fixed characters are masked.
SchemaName	String	test	The name of the database.
SecurityLevel	String	SENSITIVE	The sensitivity level of the column.
TableName	String	test	The name of the table.
Success	Boolean	true	Indicates whether the request succeeded.
TotalCount	Long	10	The total number of entries that are returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListSensitiveColumns
&Tid=-1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TotalCount>5</TotalCount>
<RequestId>0E714EF1-E617-4BBC-A3D2-9552063BA942</RequestId>
<SensitiveColumnList>
    <SensitiveColumn>
        <TableName>yuyang_test</TableName>
        <ColumnName>c1</ColumnName>
        <ColumnCount>0</ColumnCount>
        <SecurityLevel>SENSITIVE</SecurityLevel>
        <SchemaName>testdb</SchemaName>
    </SensitiveColumn>
    <SensitiveColumn>
        <TableName>yuyang_test_luanma</TableName>
        <ColumnName>c1</ColumnName>
        <ColumnCount>0</ColumnCount>
        <SecurityLevel>SENSITIVE</SecurityLevel>
        <SchemaName>testdb</SchemaName>
    </SensitiveColumn>
    <SensitiveColumn>
        <TableName>yuyang_test</TableName>
        <ColumnName>id</ColumnName>
        <ColumnCount>0</ColumnCount>
        <SecurityLevel>SENSITIVE</SecurityLevel>
        <SchemaName>testdb</SchemaName>
    </SensitiveColumn>
    <SensitiveColumn>
        <TableName>yuyang_test_luanma</TableName>
        <ColumnName>id</ColumnName>
        <ColumnCount>0</ColumnCount>
        <SecurityLevel>SENSITIVE</SecurityLevel>
        <SchemaName>testdb</SchemaName>
    </SensitiveColumn>
    <SensitiveColumn>
        <TableName>yuyang_test_json</TableName>
        <ColumnName>id</ColumnName>
        <ColumnCount>0</ColumnCount>
        <SecurityLevel>CONFIDENTIAL</SecurityLevel>
        <SchemaName>test_demo</SchemaName>
    </SensitiveColumn>
</SensitiveColumnList>
<Success>true</Success>
```

`JSON` format

```
{
  "TotalCount": 5,
  "RequestId": "0E714EF1-E617-4BBC-A3D2-9552063BA942",
  "SensitiveColumnList": {
    "SensitiveColumn": [
      {
        "TableName": "yuyang_test",
        "ColumnName": "c1",
        "ColumnCount": 0,
        "SecurityLevel": "SENSITIVE",
        "SchemaName": "testdb"
      },
      {
        "TableName": "yuyang_test_luanma",
        "ColumnName": "c1",
        "ColumnCount": 0,
        "SecurityLevel": "SENSITIVE",
        "SchemaName": "testdb"
      },
      {
        "TableName": "yuyang_test",
        "ColumnName": "id",
        "ColumnCount": 0,
        "SecurityLevel": "SENSITIVE",
        "SchemaName": "testdb"
      },
      {
        "TableName": "yuyang_test_luanma",
        "ColumnName": "id",
        "ColumnCount": 0,
        "SecurityLevel": "SENSITIVE",
        "SchemaName": "testdb"
      },
      {
        "TableName": "yuyang_test_json",
        "ColumnName": "id",
        "ColumnCount": 0,
        "SecurityLevel": "CONFIDENTIAL",
        "SchemaName": "test_demo"
      }
    ]
  },
  "Success": true
}
```


13.1.2.9.2. ListSensitiveColumnsDetail

Queries the details of sensitive fields.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListSensitiveColumnsDetail	The operation that you want to perform. Set the value to **ListSensitiveColumnsDetail**.
ColumnName	String	Yes	test	The name of the field.
SchemaName	String	Yes	test	The name of the database.
TableName	String	Yes	test	The name of the table.
Tid	Long	Yes	1	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The returned error code.
ErrorMessage	String	UnknownError	The returned error message.
RequestId	String	7629888F-C9FB-4D16-A7D3-B443FE06FBD4	The ID of the request.
SensitiveColumnsDetailList	Array of SensitiveColumnsDetail		The details about the sensitive fields.
SensitiveColumnsDetail			
ColumnDescription	String	test	The description of the field.
ColumnName	String	test	The name of the field.
ColumnType	String	varchar(32)	The data type of the field.
DbId	Long	124	The ID of the database.

Parameter	Type	Example	Description
DbType	String	mysql	The type of the database.
EnvType	String	product	The type of the environment to which the database belongs.
Logic	Boolean	false	Indicates whether the database is a logical database.
SchemaName	String	test	The name of the database.
SearchName	String	test@xxx:3306	The name that is used to search for the database.
TableName	String	test	The name of the table.
Success	Boolean	true	Indicates whether the request succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListSensitiveColumnsDetail
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>7629888F-C9FB-4D16-A7D3-B443FE06FBD4</RequestId>
<SensitiveColumnsDetailList>
    <SensitiveColumnsDetail>
        <TableName>king_info</TableName>
        <ColumnName>mobile</ColumnName>
        <ColumnType>varchar(64)</ColumnType>
        <SearchName>poc_prod@xxx.mysql.rds.aliyuncs.com:3306【xxx】</SearchName>
        <ColumnDescription>mobile</ColumnDescription>
        <DbId>8511149</DbId>
        <Logic>false</Logic>
        <SchemaName>poc_prod</SchemaName>
        <EnvType>product</EnvType>
        <DbType>mysql</DbType>
    </SensitiveColumnsDetail>
</SensitiveColumnsDetailList>
<Success>true</Success>
```

`JSON` format


```
{
  "RequestId": "7629888F-C9FB-4D16-A7D3-B443FE06FBD4",
  "SensitiveColumnsDetailList": {
    "SensitiveColumnsDetail": [
      {
        "TableName": "king_info",
        "ColumnName": "mobile",
        "ColumnType": "varchar(64)",
        "SearchName": "poc_prod@xxx.mysql.rds.aliyuncs.com:3306【xxx】",
        "ColumnDescription": "mobile",
        "DbId": 8511149,
        "Logic": false,
        "SchemaName": "poc_prod",
        "EnvType": "product",
        "DbType": "mysql"
      }
    ]
  },
  "Success": true
}
```


13.1.2.10. Data query

13.1.2.10.1. ExecuteScript

Executes SQL statements.

This operation is available only for instances that are managed in the security collaboration mode.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ExecuteScript	The operation that you want to perform. Set the value to **ExecuteScript**.
DbId	Integer	Yes	123	The ID of the database. **Note** You can obtain the database ID from the **DatabaseId** parameter that is returned by the **GetDatabase** operation.

Parameter	Type	Required	Example	Description
Logic	Boolean	Yes	false	A Boolean value that indicates whether the database to be affected is a logical database.
Script	String	Yes	select dt from report_daily	The SQL statements to be executed. Data query language (DQL) statements, data definition language (DDL) statements, and data manipulation language (DML) statements are supported. The control mode of the instance that you want to query determines whether you can execute DDL and DML statements.
Tid	Long	No	234	The ID of the tenant.
RegionId	String	No	cn-hangzhou	The region ID.

Response parameters

Parameter	Type	Example	Description
ErrorCode	String	UnknownError	The error code that is returned.
ErrorMessage	String	UnknownError	The error message that is returned.
RequestId	String	FE8EE2F1-4880-46BC-A704-5CF63EAF9A04	The ID of the request.
Results	Array of Result		The results that are returned by the SQL statements in the format of an array. Each entry in the array indicates the result of an SQL statement.
ColumnNames	List	["col1", "col2"]	The fields that are returned by the SQL statement.
Message	String	UnknownError	The error message that is returned if the call fails.

Parameter	Type	Example	Description
RowCount	Long	1	The total number of entries that are returned.
Rows	List	[{"col1": "value1", "col2":"value2"}]	The rows that are returned by the SQL statement.
Success	Boolean	true	Indicates whether the SQL statement is executed.
Success	Boolean	true	Indicates whether the call succeeded.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ExecuteScript
&DbId=123
&Logic=false
&Script=select dt from report_daily
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>FE8EE2F1-4880-46BC-A704-5CF63EAF9A04</RequestId>
<Results>
    <Message>UnknownError</Message>
    <RowCount>1</RowCount>
    <Success>true</Success>
</Results>
<Results>
    <ColumnNames>["col1", "col2"]</ColumnNames>
    <Rows>[{"col1": "value1", "col2":"value2"}]</Rows>
</Results>
<ErrorCode>UnknownError</ErrorCode>
<ErrorMessage>UnknownError</ErrorMessage>
<Success>true</Success>
```

`JSON` format

```
{"RequestId":"FE8EE2F1-4880-46BC-A704-5CF63EAF9A04","Results":[{"Message":"UnknownError","R
owCount":"1","Success":"true"},{"ColumnNames":"[\"col1\", \"col2\"]","Rows":"[{\"col1\": \"
value1\", \"col2\":\"value2\"}]"}],"ErrorCode":"UnknownError","ErrorMessage":"UnknownError"
,"Success":"true"}
```

14.Server Load Balancer (SLB)

14.1. Developer Guide

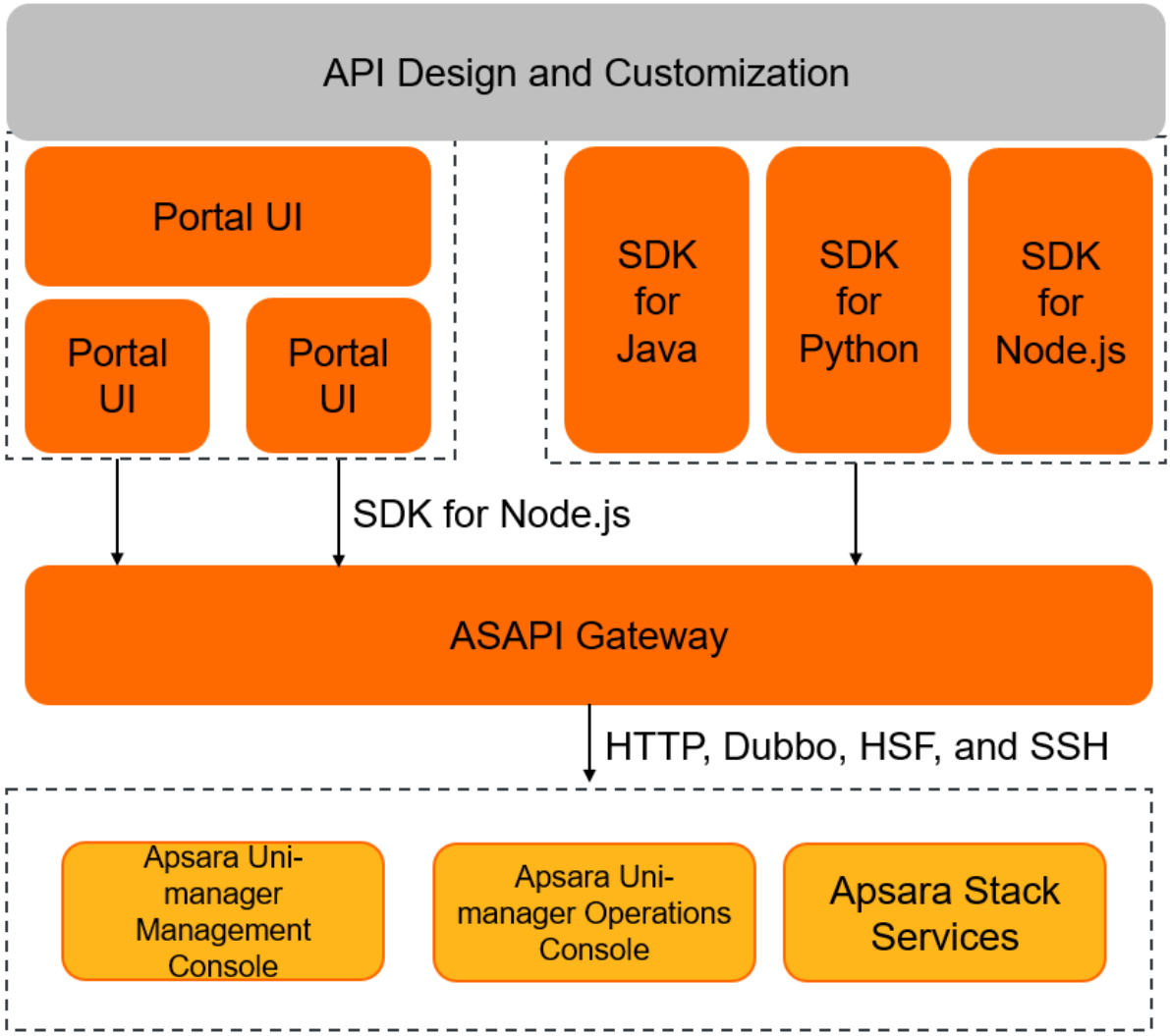
14.1.1. Make SDK calls by using ASAPI

14.1.1.1. 文档标题缺失，请补全后重新导出

14.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

14.1.1.1.2. Preparations

14.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

14.1.1.1.2.2. View information about API operations

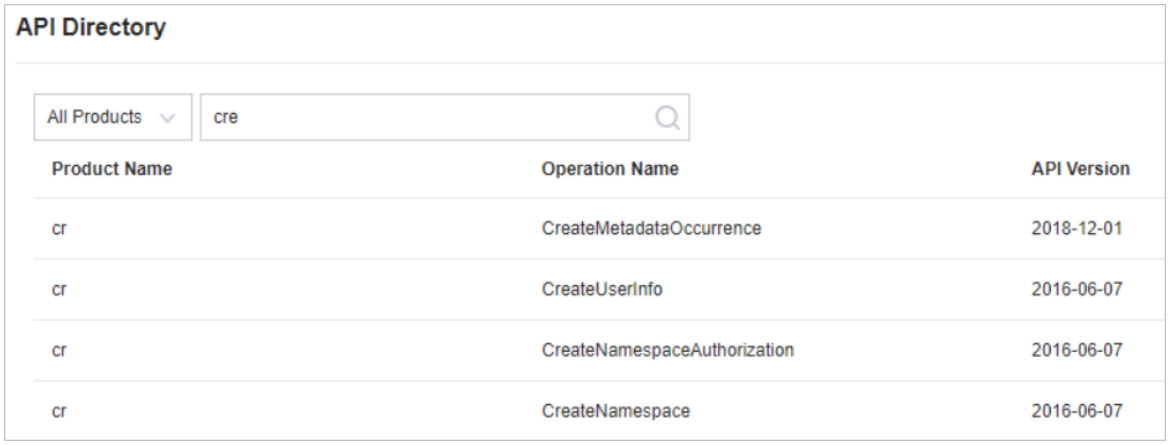
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



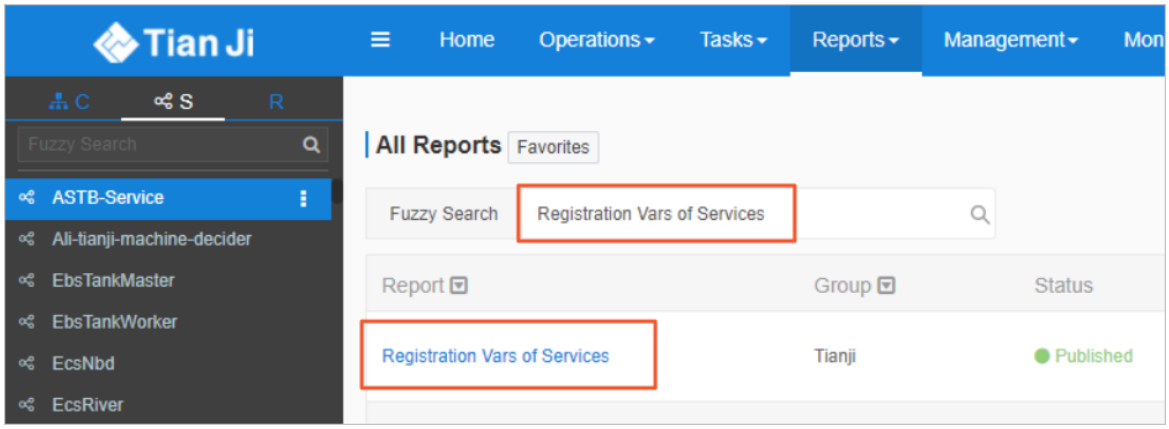
4. Then, you can view the service name, API operation name, and API operation version.

14.1.1.1.2.3. Generate an endpoint for the ASAPI

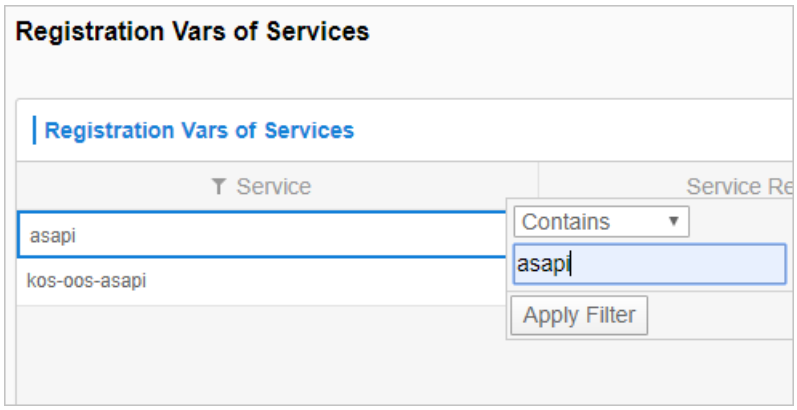
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

14.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

14.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

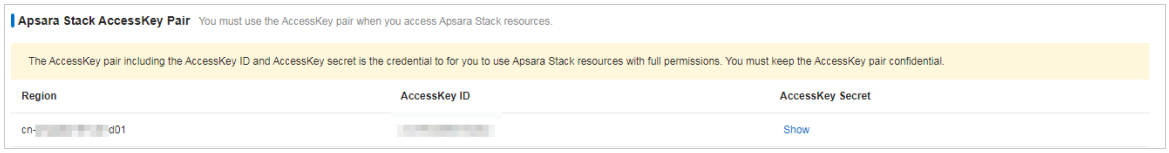
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

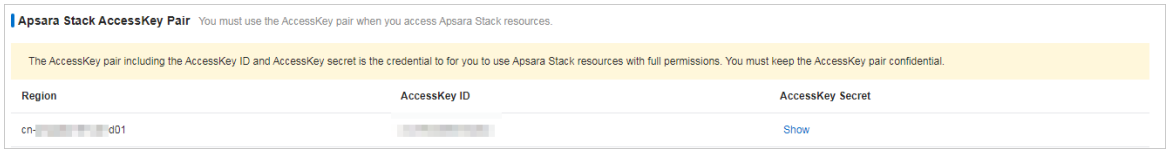
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

14.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



14.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

14.1.1.1.4. SDK description

14.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

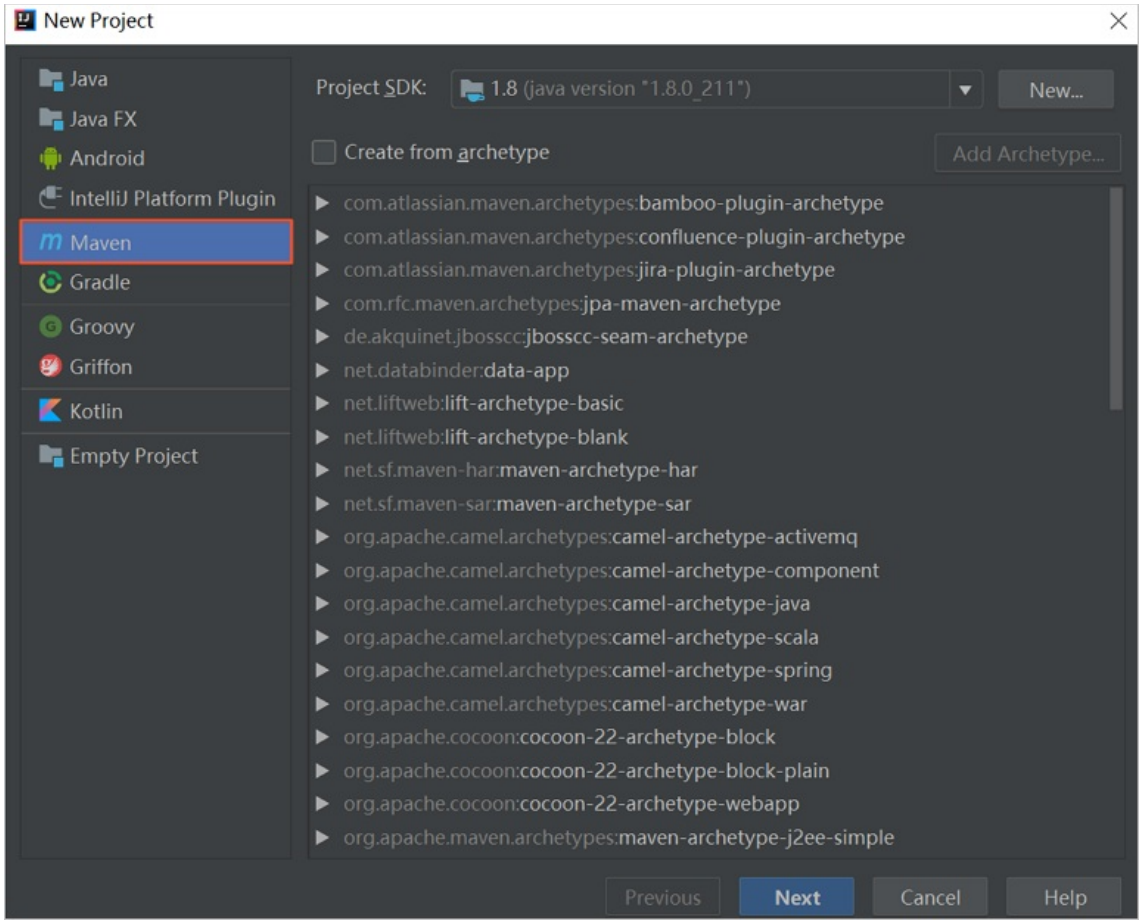
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

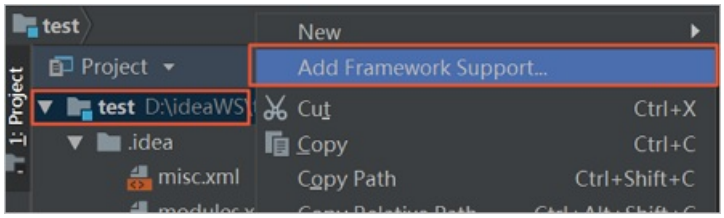
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

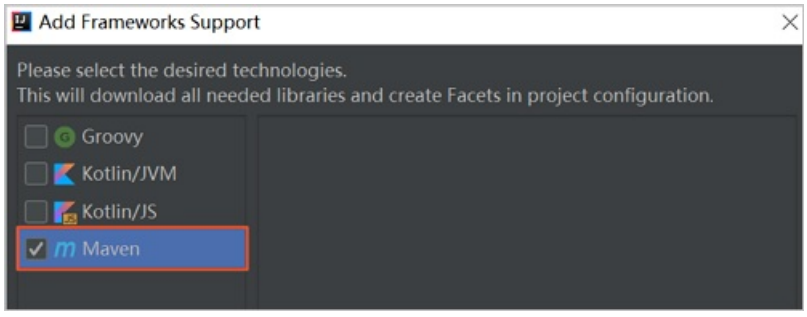
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



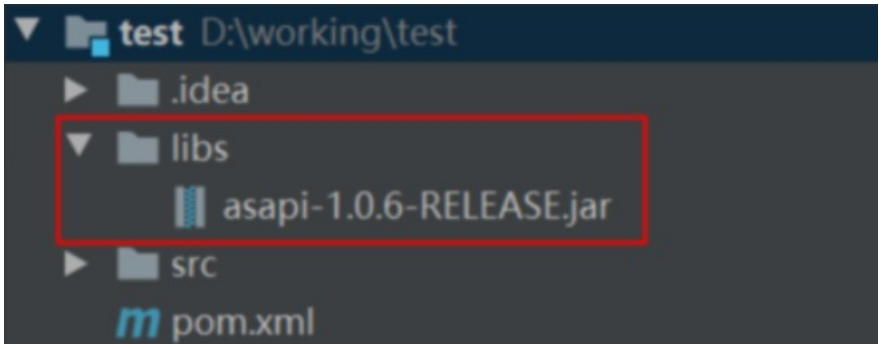
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



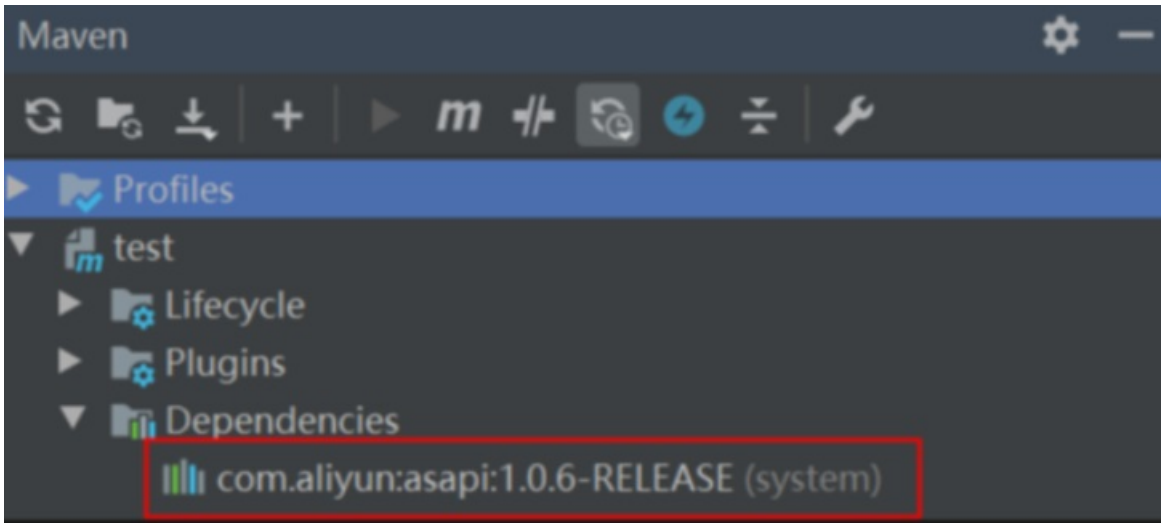
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

14.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

14.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

14.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

Notice

If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")    // Configure the HTTP proxy.
client.GetHttpProxy()                           // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")    // Configure the HTTPS proxy.
client.GetHttpsProxy()                            // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")      // Configure the proxy whitelist.
client.GetNoProxy()                           // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

14.1.1.1.5. HTTP requests

14.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

14.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https` : the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3` : the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10` : the API operation to call.
- `Id` : the ID of the organization.
- `<Common parameters>` : the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

14.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D` .

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

14.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

14.1.2. API Reference

14.1.2.1. Make API requests

To call a Server Load Balancer (SLB) API operation, you must send an HTTP GET request to the endpoint of the SLB API. You must add the request parameters that correspond to the API operation being called. After you call the API operation, the system returns a response. The request and response are encoded in UTF-8.

Request syntax

SLB API operations use the RPC protocol. You can call SLB API operations by sending HTTP GET requests.

The request syntax is:

```
http://Endpoint/?Action=xx&Parameters
```

where:

- Endpoint: the endpoint of the SLB API is `slb.example.com`.

  > **Note** `example.com` is a custom domain name. To obtain the domain name, contact an administrator. For more information, see Generate the Apsara Stack API (ASAPI) endpoint.

- Action: the name of the operation being performed. For example, to query SLB instances, you must set the Action parameter to DescribeLoadBalancers.
- Version: is the version of the API that you want to use. The current SLB API version is *2014-05-15*.
- Parameters: the request parameters for the operation. Separate multiple parameters with ampersands (&).

  Request parameters include both common parameters and operation-specific parameters. Common parameters include the API version and authentication information. For more information, see Common parameters.

The following example demonstrates how to call the DescribeLoadBalancers operation in SLB.

> **Note** The sample requests are formatted to improve readability.

```
https://slb.example.com/?Action=DescribeLoadBalancers
&Format=xml
&Version=2014-05-15
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&TimeStamp=2016-02-23T12:46:24Z
...
```

API authorization

To ensure the security of your account, we recommend that you call APIs as a Resource Access Management (RAM) user. To call the SLB API as a RAM user, you must create and add a permission policy to the RAM user.

For more information about the resources and operations that can be authorized to a RAM user, see RAM authentication.

Request signatures

You must sign all API requests to ensure security. Apsara Stack uses the request signature to verify the identity of the API caller.

SLB implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Apsara Stack tenant accounts and RAM users. An AccessKey pair is similar to a logon username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential. For more information, see Obtain an AccessKey pair.

You must add the signature to the SLB API request in the following format:

`https://endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=xxxx%xxxx%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`

Take the DescribeLoadBalancers operation as an example. If the AccessKey ID is `testid` and the AccessKey secret is `testsecret`, the pre-signed request URL is:

```
http://slb.example.com/?Action=DescribeLoadBalancers
&TimeStamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2014-05-26
&SignatureVersion=1.0
```

Perform the following operations to calculate the signature:

1. Use the request parameters to create a query string for the signature.

   ```
   GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeLoadBalancers&Format%3DXML&SignatureMethod%3DHMAC-SHA1&SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&SignatureVersion%3D1.0&TimeStamp%3D2016-02-23T12%253A46%253A24Z&Version%3D2014-05-15
   ```

2. Calculate the hash-based message authentication code (HMAC) value of the string-to-sign.

   Append an ampersand (&) to the AccessKey secret as the key for calculating the HMAC value. In this example, the key is `testsecret&`.

   ```
   CT9X0VtwR86fNWSnsc6v8YG****E=
   ```

3. Add the signature to the request parameters:

   ```
   http://slb.example.com/?Action=DescribeLoadBalancers
   &TimeStamp=2016-02-23T12:46:24Z
   &Format=XML
   &AccessKeyId=testid
   &SignatureMethod=HMAC-SHA1
   &SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
   &Version=2014-05-15
   &SignatureVersion=1.0
   &Signature=xxxx%xxxx%3D
   ```

14.1.2.2. RAM authentication

Before calling an SLB API as a RAM user, you must use an Alibaba Cloud account to create an authorization policy to assign permissions to the RAM user. In the authorization policy, you must use an Alibaba Cloud Resource Name (ARN) as the unique identifier of the resource.

Available SLB resources

The following table describes the ARN format for different types of SLB resources.

Resource type	ARN format
LoadBalancer	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
	`acs:slb:$regionid:$accountid:loadbalancer/*`
	`acs:slb:*:$accountid:loadbalancer/*`
	`acs:slb:*:*:loadbalancer/*`
Certificate	`acs:slb:$regionid:$accountid:certificate/$servercertificateId`
	`acs:slb:$regionid:$accountid:certificate/*`

`$regionid/accoutid/servercertificateId` is the resource ID. `*` indicates the corresponding resources.

SLB APIs

The following table lists the APIs that can be authorized and their corresponding ARN formats.

API	ARN format
CreateLoadBalancer	`acs:slb:$regionid:$accountid:loadbalancer/*`
ModifyLoadBalancerInternetSpec	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DeleteLoadBalancer	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
SetLoadBalancerStatus	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
SetLoadBalancerName	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeLoadBalancers	`acs:slb:$regionid:$accountid:loadbalancer/*`
DescribeLoadBalancerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeRegions	`acs:slb:*:$accountid:*`
UploadServerCertificate	`acs:slb:%s:%s:certificate/*`

API	ARN format
DeleteServerCertificate	`acs:slb:%s:%s:certificate/%`
DescribeServerCertificate	`acs:slb:%s:%s:certificate/%`
SetServerCertificateName	`acs:slb:%s:%s:certificate/%`
DescribeServerCertificates	`acs:slb:%s:%s:certificate/*`
CreateLoadBalancerHTTPListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
CreateLoadBalancerHTTPSListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:slb:%s:%s:certificate/%`
CreateLoadBalancerTCPListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
CreateLoadBalancerUDPListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DeleteLoadBalancerListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
StartLoadBalancerListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
StopLoadBalancerListener	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
SetLoadBalancerHTTPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
SetLoadBalancerHTTPSListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:slb:%s:%s:certificate/%`
SetLoadBalancerTCPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
SetLoadBalancerUDPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeLoadBalancerHTTPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeLoadBalancerHTTPSListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`

API	ARN format
DescribeLoadBalancerTCPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeLoadBalancerUDPListenerAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
AddBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
RemoveBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
SetBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
DescribeHealthStatus	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
CreateVServerGroup	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
SetVServerGroupAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DeleteVServerGroup	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeVServerGroups	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
DescribeVServerGroupAttribute	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
AddVServerGroupBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
RemoveVServerGroupBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid` `acs:ecs:$regionid:$accountid:instance/$instanceid`

API	ARN format
ModifyVServerGroupBackendServers	`acs:slb:$regionid:$accountid:loadbalancer/$loadbalancerid`
	`acs:ecs:$regionid:$accountid:instance/$instanceid`

14.1.2.3. Common parameters

Common request parameters

Common request parameters are request parameters that you must use when you call any API.

Common request parameters

Name	Type	Required	Description
Format	String	No	The format of the response. Valid values: *JSON (default) | XML*
Version	String	Yes	The API version in the format of `YYYY-MM-DD`. Valid values: *2014-05-15*
AccessKeyId	String	Yes	The AccessKey ID that is used to access a service.
Signature	String	Yes	The signature result string.
SignatureMethod	String	Yes	The algorithm used to create the request signature. Valid values: *HMAC-SHA1*
Timestamp	String	Yes	The request timestamp. The timestamp uses UTC and it complies with the ISO 8601 standard. The timestamp format is `YYYY-MM-DDThh:mm:ssZ`. For example, 20:00:00 on January 1st, 2013 in China Standard Time (UTC +8) would be written as 2013-01-10T12:00:00Z.
SignatureVersion	String	Yes	The signature algorithm version. Valid value: 1.0
SignatureNonce	String	Yes	A unique random number that is used to prevent network replay attacks. You must use different random numbers for different requests.

Example

```
http://slb.example.com/?Action=DescribeLoadBalancers
&TimeStamp=2014-05-19T10%3A33%3A56Z
&Format=xml
&AccessKeyId=testid
&Action=DescribeLoadBalancerAttribute
&SignatureMethod=Hmac-SHA1
&LoadBalancerId=loadBalancerID
&SignatureNonce=NwDAxvLU6tFE0DVb
&Version=2014-05-15
&SignatureVersion=1.0
&Signature=Signature
```

Common response parameters

API responses use a unified format. The 2xx HTTP status code indicates a successful invocation. The 4xx or 5xx HTTP status code indicates a failed invocation. The responses can be returned in JSON or XML format. The XML format is used by default. You can specify the format when calling an API.

Each time a request is sent to call an API, the system returns a unique identifier RequestId, regardless of whether the invocation is successful.

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
    <!—Result root node-->
    <API name+Response>
        <!—Returned request tag-->
        <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
        <!—Returned result-->
    </API name+Response>
```

- JSON format

```
{
    "RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
    /*Returned result*/
    }
```

14.1.2.4. SLB instance

14.1.2.4.1. CreateLoadBalancer

Creates a Server Load Balancer (SLB) instance.

Before you call this operation, take note of the following items:

- Before you create an SLB instance, call the DescribeAvailableResource operation to query the resources available for purchase in the zone where you want to create the SLB instance.
- You are charged for the SLB instances that you create. For more information, see Create an SLB instance.
- If you do not set **LoadBalancerSpec**, a shared-resource SLB instance is created. We recommend that you set the **LoadBalancerSpec** parameter to specify the specification of the SLB instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateLoadBalancer	The operation that you want to perform. Set the value to **CreateLoadBalancer**.
RegionId	String	Yes	cn-east-hangzhou-01	The ID of the region where you want to create the SLB instance. You can call the DescribeRegions operation to query region IDs.
AddressType	String	No	internet	The network type of the SLB instance. Valid values: **internet** and **intranet**. • **internet**: After an Internet-facing SLB instance is created, the system allocates a public IP address to the SLB instance. Then, the SLB instance can forward requests from the Internet. • **intranet**: After an internal-facing SLB instance is created, the system allocates a private IP address to the SLB instance. Then, the SLB instance can forward only internal requests.
InternetChargeType	String	No	paybytraffic	The billing method of the Internet-facing SLB instance. Set the value to paybytraffic. • **paybytraffic**: pay-by-data-transfer

Parameter	Type	Required	Example	Description
Bandwidth	Integer	No	10	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **1 to 5120** and **-1**. • **-1**: For a pay-by-data-transfer Internet-facing SLB instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited. • **1 to 5120**: For a pay-by-bandwidth Internet-facing SLB instance, you can specify the bandwidth limit for each listener. The sum of bandwidth limit values that you set for all listeners cannot exceed the bandwidth limit of the SLB instance. For more information, see Bandwidth of a shared-resource SLB instance.
ClientToken	String	No	5A2CFF0E-5718-45B5-9D4D-70B3FF3898	This parameter is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
LoadBalancerName	String	No	abc	The name of the SLB instance. The name must be 1 to 80 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. If this parameter is not set, the system automatically creates a name for the SLB instance.
VpcId	String	No	vpc-bp1aevy8sofi8mh1*****	The ID of the virtual private cloud (VPC) to which the SLB instance belongs.

Parameter	Type	Required	Example	Description
VSwitchId	String	No	vsw-bp12mw1f8k3jgy*****	The ID of the vSwitch to which the internal-facing SLB instance belongs. The vSwitch must be deployed in a VPC. To create an internal-facing SLB instance that is deployed in a VPC, you must set this parameter. If this parameter is set, the value of the **AddessType** parameter is set to **intranet** by default.
MasterZoneId	String	No	cn-hangzhou-b	The ID of the primary zone to which the SLB instance belongs. You can call the DescribeZone operation to query information about the primary and secondary zones in a region.
SlaveZoneId	String	No	cn-hangzhou-d	The ID of the secondary zone to which the SLB instance belongs. You can call the DescribeZone operation to query information about the primary and secondary zones in a region.
access_key_id	String	No	111	The AccessKey ID.
Tags	String	No	test	The tags that you want to add to the SLB instance.
EnableVpcVipFlow	String	No	1	The flow log.

Parameter	Type	Required	Example	Description
LoadBalancerSpec	String	No	slb.s2.small	Apsara Stack provides two types of SLB instance: shared-resource SLB instances and high-performance SLB instances. You can create high-performance SLB instances of different specifications. Valid values: • slb.s1.small • slb.s2.small • slb.s3.small • slb.s2.medium For more information about the specifications of high-performance SLB instances, see High-performance SLB instances.
AddressIPVersion	String	No	ipv4	The IP version that is used by the SLB instance. Valid values: ipv4 and ipv6.

Response parameters

Parameter	Type	Example	Description
LoadBalancerId	String	lb-hddhfjg*******	The ID of the SLB instance.
Address	String	42.250.**.**	The IP address that is allocated to the SLB instance.
VpcId	String	vpc-25dvzy9*****	The ID of the VPC to which the SLB instance belongs.
VSwitchId	String	vsw-255ecr***	The ID of the vSwitch to which the SLB instance belongs.
LoadBalancerName	String	abc	The name of the SLB instance.
AddressIPVersion	String	ipv4	The IP version that is used by the SLB instance.

Parameter	Type	Example	Description
NetworkType	String	classic	The type of network where the SLB instance is deployed. Valid values: • **vpc**: a VPC • **classic**: a classic network
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateLoadBalancer
&RegionId=cn-east-hangzhou-01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateLoadBalancerResponse>
    <NetworkType>vpc</NetworkType>
      <LoadBalancerName>abc</LoadBalancerName>
      <Address>192.168.0.**</Address>
      <ResourceGroupId>rg-acfmxazb***</ResourceGroupId>
      <RequestId>AB197CF0-D9E9-4475-A89D-35DBCCF13BBE</RequestId>
      <AddressIPVersion>ipv4</AddressIPVersion>
      <LoadBalancerId>lb-bp1b6c719dfa0***</LoadBalancerId>
      <VSwitchId>vsw-bp12mw1f8k3jgygk9****</VSwitchId>
      <VpcId>vpc-bp1aevy8sofi8mh1q***</VpcId>
</CreateLoadBalancerResponse>
```

`JSON` format

```
{"LoadBalancerName":"abc",
"VpcId":"vpc-25dvzy9*****",
"Address":"42.250.**.**",
"RequestId":"365F4154-92F6-4AE4-92F8-7FF34B540710",
"NetworkType":"classic",
"AddressIPVersion":"ipv4",
"VSwitchId":"vsw-255ecr***",
"LoadBalancerId":"lb-hddhfjg*******"}
```

14.1.2.4.2. DeleteLoadBalancer

Deletes a pay-as-you-go Server Load Balancer (SLB) instance.

Note After you delete an SLB instance, the listeners configured for the SLB instance and the tags added to the SLB instance are deleted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteLoadBalancer	The operation that you want to perform. Set the value to **DeleteLoadBalancer**.
LoadBalancerId	String	Yes	lb-bp1h66tp5uat8****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

If the SLB instance that you want to delete has deletion protection enabled, the system reports an error in the following formats:

- JSON format

```
   {
"RequestId": "7B7AB375-1EA6-4A18-9D1C-F258F2D57638",
"HostId": "slb.aliyuncs.com",
"Code": "OperationDenied.DeleteProtectionIsOn",
"Message": "The loadbalancer can't be deleted due to DeleteProtection is enabled."
    }
```

- XML format

```
  <?xml version="1.0" encoding="UTF-8" ?>
      <DeleteLoadBabalancerResponse>
<RequestId>7B7AB375-1EA6-4A18-9D1C-F258F2D57638</RequestId>
<HostId>slb.aliyuncs.com</HostId>
<Code>OperationDenied.DeleteProtectionIsOn</Code>
<Message>The loadbalancer can't be deleted due to DeleteProtection is enabled.</Message>
     </DeleteLoadBabalancerResponse>
```

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteLoadBalancer
&LoadBalancerId=lb-bp1h66tp5uat8********
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteLoadBabalancerResponse>
   <RequestId>E3F602B8-A162-4683-A7EC-49364E597259</RequestId>
</DeleteLoadBabalancerResponse>
```

`JSON` format

```
{
    "RequestId": "0D9B7343-AC1F-498C-A18A-78FE14A7C3A3"
}
```

14.1.2.4.3. ModifyLoadBalancerInstanceSpec

Modifies the specification of a Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyLoadBalancerInstanceSpec	The operation that you want to perform. Set the value to **ModifyLoadBalancerInstanceSpec**.
LoadBalancerId	String	Yes	lb-bp1b6c719df****	The ID of the SLB instance.

Parameter	Type	Required	Example	Description
LoadBalancerSpec	String	Yes	slb.s1.small	The specification of the SLB instance. Valid values: • **slb.s1.small** • **slb.s2.small** • **slb.s2.medium** • **slb.s3.small** • **slb.s3.medium** • **slb.s3.large** The supported specifications vary by region. For more information, see `Instance types` . **Note** When you change a shared-resource SLB instance to a high-performance SLB instance, your service may be temporarily interrupted for 10 to 30 seconds. Therefore, we recommend that you modify the specification during off-peak hours. In addition, you can use Alibaba Cloud DNS (DNS) to schedule your workloads to another SLB instance before you modify the specification.

Response parameters

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyLoadBalancerInstanceSpec
&LoadBalancerId=lb-bp1b6c719df****
&LoadBalancerSpec=slb.s2.small
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyLoadBalancerInstanceSpecResponse>
     <RequestId>D456A34A-6E40-4379-8DAF-9175760FE215</RequestId>
  </ModifyLoadBalancerInstanceSpecResponse>
```

`JSON` format

```
{
    "ModifyLoadBalancerInstanceSpecResponse": {
        "RequestId": "D456A34A-6E40-4379-8DAF-9175760FE215"
    }
}
```

14.1.2.4.4. ModifyLoadBalancerInternetSpec

Modifies the billing method of an Internet-facing Server Load Balancer (SLB) instance.

You can modify the billing method of an Internet-facing SLB instance in the following ways:

- Change the bandwidth limit of a pay-by-bandwidth SLB instance. The new bandwidth limit immediately takes effect.
- Change the billing method of an SLB instance from pay-by-data-transfer to pay-by-bandwidth. The new billing method takes effect at 00:00 the following day.
- Change the billing method of an SLB instance from pay-by-bandwidth to pay-by-data-transfer. The new billing method takes effect at 00:00 the following day.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyLoadBalancerInternetSpec	The operation that you want to perform. Set the value to **ModifyLoadBalancerInternetSpec**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	No	10	The bandwidth limit of the Internet-facing SLB instance that is billed on a pay-by-bandwidth basis. Unit: Mbit/s. Valid values: **1 to 5000**. The bandwidth limit varies based on the region where the SLB instance is created. **Note** You do not need to set this parameter for pay-by-data-transfer SLB instances. In this case, the value of **InternetChargeType** is **paybytraffic**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyLoadBalancerInternetSpec
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyLoadBalancerInternetSpecResponse>
      <RequestId>E4DD2D80-8DC0-4A2E-BFBA-BE983A31AFED</RequestId>
</ModifyLoadBalancerInternetSpecResponse>
```

`JSON` format

```
{
    "RequestId": "E4DD2D80-8DC0-4A2E-BFBA-BE983A31AFED"
}
```

14.1.2.4.5. SetLoadBalancerName

Modifies the name of a Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancerName	The operation that you want to perform. Set the value to **SetLoadBalancerName**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08e****	The ID of the SLB instance.
LoadBalancerName	String	Yes	lb-instance-test	The name of the SLB instance. The name must be 2 to 128 characters in length, and can contain letters, digits, periods (.), underscores (_), and hyphens (-).

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerName
&LoadBalancerId=lb-bp1b6c719dfa08e****
&LoadBalancerName=abc1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerStatusResponse>
   <RequestId>3C7F675E-9F82-4806-BA47-FF57E3ACC850</RequestId>
</SetLoadBalancerStatusResponse>
```

`JSON` format

```
{
    "RequestId": "3C7F675E-9F82-4806-BA47-FF57E3ACC850"
}
```

14.1.2.4.6. SetLoadBalancerStatus

Sets the state of a Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancerStatus	The operation that you want to perform. Set the value to **SetLoadBalancerStatus**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08e****	The ID of the SLB instance.
LoadBalancerStatus	String	Yes	active	The state of the SLB instance. Valid values: **active** and **inactive**. • **active** (default) When an SLB instance is in the Active state, listeners of the SLB instance can forward inbound traffic based on forwarding rules. • **inactive** When an SLB instance is in the **inactive** state, listeners of the SLB instance do not forward inbound traffic. **Note** If all listeners of an SLB instance are deleted, the SLB instance automatically switches to the **inactive** state.

Parameter	Type	Required	Example	Description
access_key_id	String	No	acc-hp34s2h0xx1ht4nwo****	The AccessKey ID.
Tags	String	No	{"tagKey":"Key1","tagValue":"Value1"}	The key and value of the tag.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerStatus
&LoadBalancerId=lb-bp1b6c719dfa08e******
&LoadBalancerStatus=active
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerStatusResponse>
     <RequestId>E6DDFE22-F019-4F34-B8DD-FD14973450A6</RequestId>
  </SetLoadBalancerStatusResponse>
```

`JSON` format

```
{
    "RequestId": "E6DDFE22-F019-4F34-B8DD-FD14973450A6"
}
```

14.1.2.4.7. DescribeLoadBalancerAttribute

Queries detailed information about a specified Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancerAttribute	The operation that you want to perform. Set the value to **DescribeLoadBalancerAttribute**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
LoadBalancerId	String	lb-dhhd****	The ID of the SLB instance.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.
RegionIdAlias	String	cn-qingdao-env17-d01	The alias of the region where the SLB instance is deployed.
LoadBalancerName	String	abc	The name of the SLB instance.
LoadBalancerStatus	String	active	The state of the SLB instance. Valid values: • **inactive**: The SLB instance is stopped. SLB instances in the inactive state do not forward traffic. • **active**: The SLB instance runs as expected. Newly created SLB instances are in the **active** state by default. • **locked**: The SLB instance is locked. SLB instances may be locked due to overdue payments or other reasons.
Address	String	42.XX.XX.6	The IP address that the SLB instance uses to provide services.
AddressType	String	internet	The type of IP address that the SLB instance uses to provide services.
NetworkType	String	vpc	The type of network where the SLB instance is deployed.

Parameter	Type	Example	Description
VpcId	String	vpc-25dvzy9f8****	The ID of the virtual private cloud (VPC) where the internal-facing SLB instance is deployed.
Bandwidth	Integer	5	The bandwidth limit of the Internet-facing SLB instance that is billed on a pay-by-bandwidth basis.
CreateTime	String	2017-08-31T02:49:05Z	The time when the SLB instance was created.
ListenerPorts	List	80	The list of frontend ports that are used by the SLB instance.
ListenerPortsAndProtocol	Array of ListenerPortAndProtocol		The list of frontend ports and protocols that are used by the SLB instance.
ListenerPortAndProtocol			
ListenerPort	Integer	443	The frontend port that is used by the SLB instance.
ListenerProtocol	String	https	The frontend protocol that is used by the SLB instance.
BackendServers	Array of BackendServer		The list of backend servers that are added to the SLB instance.
BackendServer			
ServerId	String	i-djghr2****	The ID of the backend server.
Weight	Integer	90	The weight of the backend server.
ServerIp	String	192.168.0.1	The IP address of the backend server.
Type	String	ecs	The type of the backend server.
MasterZoneId	String	cn-hangzhou-b	The ID of the primary zone to which the SLB instance belongs.

Parameter	Type	Example	Description
AutoReleaseTime	Long	1513947075	The timestamp that indicates when the SLB instance was released.
CreateTimeStamp	Long	1504147745000	The timestamp that indicates when the SLB instance was created.
EndTime	String	2999-09-08T16:00:00Z	The time when the SLB instance was suspended.
EndTimeStamp	Long	32493801600000	The timestamp that indicates when the SLB instance was suspended.
InternetChargeType	String	paybybandwidth	The billing method of the Internet-facing SLB instance. Valid values: **paybybandwidth** and **paybytraffic**. • **paybybandwidth**: pay-by-bandwidth • **paybytraffic** (default): pay-by-data-transfer
ListenerPortsAndProtocal	Array of ListenerPortAndProtocal		The port and protocol of the listener.
ListenerPortAndProtocal			
ListenerPort	Integer	443	The frontend port that is used by the SLB instance.
ListenerProtocal	String	http	The frontend protocol that is used by the SLB instance.
LoadBalancerSpec	String	slb.s2.small	The specification of the SLB instance.
PayType	String	PrePay	The billing method of the SLB instance. Valid values: **PayOnDemand** and **PrePay**.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Parameter	Type	Example	Description
SlaveZoneId	String	cn-hangzhou-d	The ID of the secondary zone to which the SLB instance belongs.
VSwitchId	String	vsw-255ecrwq5****	The ID of the vSwitch to which the internal-facing SLB instance belongs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancerAttribute
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancerAttributeResponse>
      <CreateTimeStamp>1541679713000</CreateTimeStamp>
   <RegionIdAlias>cn-hangzhou</RegionIdAlias>
   <BackendServers>
      <BackendServer>
         <ServerId>i-bp1c3zrr37ablp8ujo7v</ServerId>
         <Weight>100</Weight>
         <Type>ecs</Type>
      </BackendServer>
   </BackendServers>
   <HasReservedInfo>false</HasReservedInfo>
   <ListenerPorts></ListenerPorts>
   <InternetChargeType>paybytraffic</InternetChargeType>
   <VSwitchId>vsw-bp12mw1f8k3*********</VSwitchId>
   <VpcId>vpc-bp1aevy8sofi8mh*****</VpcId>
   <SlaveZoneId>cn-hangzhou-d</SlaveZoneId>
   <LoadBalancerSpec>slb.s2.small</LoadBalancerSpec>
   <NetworkType>vpc</NetworkType>
   <ListenerPortsAndProtocol></ListenerPortsAndProtocol>
   <PayType>PayOnDemand</PayType>
   <Bandwidth>5120</Bandwidth>
   <LoadBalancerName>abc1</LoadBalancerName>
   <ResourceGroupId>rg-acfmxazb4p*****</ResourceGroupId>
   <AddressIPVersion>ipv4</AddressIPVersion>
   <LoadBalancerId>lb-bp1b6c719dfa08e*****</LoadBalancerId>
   <EndTimeStamp>32493801600000</EndTimeStamp>
   <MasterZoneId>cn-hangzhou-b</MasterZoneId>
   <ListenerPortsAndProtocal></ListenerPortsAndProtocal>
   <Address>192.168.0.1</Address>
   <RegionId>cn-hangzhou</RegionId>
   <RequestId>35D745B3-1567-4855-9EF1-F5CED3C1670C</RequestId>
   <CreateTime>2018-11-08T12:21:53Z</CreateTime>
   <AddressType>intranet</AddressType>
   <EndTime>2999-09-08T16:00:00Z</EndTime>
   <LoadBalancerStatus>active</LoadBalancerStatus>
</DescribeLoadBalancerAttributeResponse>
```

`JSON` format

```
{
    "CreateTimeStamp": 1541679713000,
    "RegionIdAlias": "cn-hangzhou",
    "BackendServers": {
        "BackendServer": [
            {
                "ServerId": "i-bp1c3zrr37ab*****",
                "Weight": 100,
                "Type": "ecs"
            }
        ]
    },
    "HasReservedInfo": "false",
    "ListenerPorts": {
        "ListenerPort": [ ]
    },
    "InternetChargeType": "paybytraffic",
    "VSwitchId": "vsw-bp12mw1f8k******",
    "VpcId": "vpc-bp1aevy8sofi8mh******",
    "SlaveZoneId": "cn-hangzhou-d",
    "LoadBalancerSpec": "slb.s2.small",
    "NetworkType": "vpc",
    "ListenerPortsAndProtocol": {
        "ListenerPortAndProtocol": [ ]
    },
    "PayType": "PayOnDemand",
    "Bandwidth": 5120,
    "LoadBalancerName": "abc1",
    "ResourceGroupId": "rg-acfmxazb*****",
    "AddressIPVersion": "ipv4",
    "LoadBalancerId": "lb-bp1b6c719dfa08*****",
    "EndTimeStamp": 32493801600000,
    "MasterZoneId": "cn-hangzhou-b",
    "ListenerPortsAndProtocal": {
        "ListenerPortAndProtocal": [ ]
    },
    "Address": "192.168.0.1",
    "RegionId": "cn-hangzhou",
    "RequestId": "35D745B3-1567-4855-9EF1-F5CED3C1670C",
    "CreateTime": "2018-11-08T12:21:53Z",
    "AddressType": "intranet",
    "EndTime": "2999-09-08T16:00:00Z",
    "LoadBalancerStatus": "active"
}
```


14.1.2.4.8. DescribeLoadBalancers

Queries Server Load Balancer (SLB) instances.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancers	The operation that you want to perform. Set the value to **DescribeLoadBalancers**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed. You can query the region ID from the Regions and zones list or by calling the DescribeRegions operation.
ServerId	String	No	vm-23****	The ID of the backend server that is added to the SLB instance.
LoadBalancerId	String	No	lb-bp1b6c719dfa****	The ID of the SLB instance. You can specify at most 10 IDs in each request. Separate multiple IDs with commas (,).
LoadBalancerName	String	No	abc1	The name of the SLB instance. You can specify at most 10 names in each request. Separate multiple names with commas (,).
ServerIntranetAddress	String	No	10.XX.XX.6	The private IP address of the backend server that is added to the SLB instance. You can specify multiple IP addresses to query SLB instances. Separate multiple IP addresses with commas (,).

Parameter	Type	Required	Example	Description
AddressType	String	No	intranet	The type of network where the SLB instance is deployed. Valid values: **intranet** and **internet**. • **internet**: After an Internet-facing SLB instance is created, the system allocates a public IP address to the SLB instance. Then, the SLB instance can forward requests from the Internet. • **intranet**: After an internal-facing SLB instance is created, the system allocates a private IP address to the SLB instance. Then, the SLB instance can forward only internal requests.
InternetChargeType	String	No	paybybandwidth	The billing method of the Internet-facing SLB instance. Valid values: **paybybandwidth** and **paybytraffic**. • **paybybandwidth**: pay-by-bandwidth • **paybytraffic**: pay-by-data-transfer. **Note** If you do not specify this parameter, the billing method of the SLB instance remains unchanged.
VpcId	String	No	vpc-bp1aevy8sof****	The ID of the virtual private cloud (VPC) to which the SLB instance belongs.
VSwitchId	String	No	vsw-bp12mw1f8k3****	The ID of the vSwitch to which the SLB instance belongs.
NetworkType	String	No	vpc	The type of network where the internal-facing SLB instance is deployed. Valid values: **vpc** and **classic**. • **vpc**: a VPC • **classic**: a classic network

Parameter	Type	Required	Example	Description
Address	String	No	192.168.0.1	The IP address that the SLB instance uses to provide services.
MasterZoneId	String	No	cn-hangzhou-b	The ID of the primary zone to which the SLB instance belongs.
SlaveZoneId	String	No	cn-hangzhou-d	The ID of the secondary zone to which the SLB instance belongs. Multiple zones are not supported for users whose workloads are deployed on Alibaba Finance Cloud.
Tags	String	No	{"tagKey":"Key1", "tagValue":"Value1"}	The list of tags that are added to the SLB instances. The tags must be key-value pairs in a JSON dictionary. You can specify at most 10 tags in each request.
PayType	String	No	PayOnDemand	The billing method of the SLB instance. Valid values: **PayOnDemand** and **PrePay**. • **PayOnDemand**: pay-as-you-go • **PrePay**: subscription
AddressIPVersion	String	No	ipv4	The IP version. Valid values: **ipv4** and **ipv6**. **Note** You can create high-performance IPv6 SLB instances only in the following zones: Hangzhou Zone E and Hangzhou Zone F in the China (Hangzhou) region, Beijing Zone F and Beijing Zone G in the China (Beijing) region, Nantong Zone D and Nantong Zone E in the China (Nantong) region, Zhangjiakou Zone A and Zhangjiakou Zone B in the China (Zhangjiakou) region, and Shenzhen Zone D and Shenzhen Zone E in the China (Shenzhen) region.

Response parameters

Parameter	Type	Example	Description
LoadBalancers	Array of LoadBalancer		The list of SLB instances.
LoadBalancer			
LoadBalancerId	String	lb-hjfng****	The ID of the SLB instance.
LoadBalancerName	String	def	The name of the SLB instance.
LoadBalancerStatus	String	active	The state of the SLB instance. Valid values: • **inactive**: Listeners do not forward requests. • **active**: Newly created SLB instances are in the active state by default. • **locked**: The SLB instance is locked.
Address	String	100.XX.XX.28	The IP address of the SLB instance.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.
RegionIdAlias	String	cn-qingdao-env17-d01	The name of the region where the SLB instance is deployed.
AddressType	String	intranet	The type of network where the SLB instance is deployed.
VSwitchId	String	vsw-255ecr****	The ID of the vSwitch to which the internal-facing SLB instance belongs.
VpcId	String	vpc-25dvzy9f8****	The ID of the VPC to which the internal-facing SLB instance belongs.
NetworkType	String	vpc	The type of network where the internal-facing SLB instance is deployed. Valid values: • **vpc**: a VPC • **classic**: a classic network
CreateTime	String	2017-08-31T02:49:05Z	The time when the SLB instance was created.

Parameter	Type	Example	Description
MasterZoneId	String	cn-hangzhou-b	The ID of the primary zone where the SLB instance is deployed.
SlaveZoneId	String	cn-hangzhou-d	The ID of the secondary zone where the SLB instance is deployed.
AddressIPVersion	String	ipv4	The IP version. Valid values: ipv4 and ipv6.
CreateTimeStamp	Long	1504147745000	The timestamp generated when the SLB instance was created.
InternetChargeType	String	paybybandwidth	The billing method of the Internet-facing SLB instance. Set the value to paybytraffic. • **paybybandwidth**，按带宽计费。 • **paybytraffic** (default): pay-by-data-transfer **Note** If the value of the PayType parameter is set to PrePay, only pay-by-bandwidth is supported.
PayType	String	PrePay	The billing method of the SLB instance. Valid values: **PayOnDemand** and **PrePay**.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancers
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancersResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>50</PageSize>
      <LoadBalancers>
            <LoadBalancer>
                  <CreateTimeStamp>1541679713000</CreateTimeStamp>
                  <LoadBalancerName>abc1</LoadBalancerName>
                  <RegionIdAlias>cn-hangzhou</RegionIdAlias>
                  <ResourceGroupId>rg-acfmxaz*******y</ResourceGroupId>
                  <AddressIPVersion>ipv4</AddressIPVersion>
                  <LoadBalancerId>lb-bp1b6c********fuca5</LoadBalancerId>
                  <VSwitchId>vsw-bp12mw1f********bmlj</VSwitchId>
                  <InternetChargeType>4</InternetChargeType>
                  <VpcId>vpc-bp1aevy8*********5cm</VpcId>
                  <SlaveZoneId>cn-hangzhou-d</SlaveZoneId>
                  <NetworkType>vpc</NetworkType>
                  <MasterZoneId>cn-hangzhou-b</MasterZoneId>
                  <CreateTime>2018-11-08T20:21Z</CreateTime>
                  <Address>192.168.0.**</Address>
                  <RegionId>cn-hangzhou</RegionId>
                  <AddressType>intranet</AddressType>
                  <PayType>PayOnDemand</PayType>
                  <LoadBalancerStatus>active</LoadBalancerStatus>
            </LoadBalancer>
      </LoadBalancers>
      <RequestId>1C7445CB-C21C-4C19-9A3C-65C3190D1944</RequestId>
</DescribeLoadBalancersResponse>
```

`JSON` format

```
{
    "DescribeLoadBalancersResponse": {
        "PageNumber": 1,
        "TotalCount": 1,
        "PageSize": 50,
        "LoadBalancers": {
            "LoadBalancer": {
                "CreateTimeStamp": 1541679713000,
                "LoadBalancerName": "abc1",
                "RegionIdAlias": "cn-hangzhou",
                "ResourceGroupId": "rg-acfmxaz*******y",
                "AddressIPVersion": "ipv4",
                "LoadBalancerId": "lb-bp1b6c********fuca5",
                "VSwitchId": "vsw-bp12mw1f********bmlj",
                "InternetChargeType": 4,
                "VpcId": "vpc-bp1aevy8*********5cm",
                "SlaveZoneId": "cn-hangzhou-d",
                "NetworkType": "vpc",
                "MasterZoneId": "cn-hangzhou-b",
                "CreateTime": "2018-11-08T20:21Z",
                "Address": "192.168.0.**",
                "RegionId": "cn-hangzhou",
                "AddressType": "intranet",
                "PayType": "PayOnDemand",
                "LoadBalancerStatus": "active"
            }
        },
        "RequestId": "1C7445CB-C21C-4C19-9A3C-65C3190D1944"
    }
}
```


14.1.2.4.9. DescribeRegions

Queries regions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to **DescribeRegions**.

Response parameters

Parameter	Type	Example	Description
Regions	Array of Region		The list of regions.

Parameter	Type	Example	Description
Region			
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
LocalName	String	China (Qingdao)	The name of the region.
RequestId	String	1651FBB6-4FBF-49FF-A9F5-DF5D696C7EC6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeRegions
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RequestId>1651FBB6-4FBF-49FF-A9F5-DF5D696C7EC6</RequestId>
<Regions>
    <Region>
        <RegionId>cn-beijing</RegionId>
        <LocalName>China (Beijing)</LocalName>
    </Region>
</Regions>
```

`JSON` format

```
{
    "RequestId": "1651FBB6-4FBF-49FF-A9F5-DF5D696C7EC6",
    "Regions": {
        "Region": {
            "RegionId": "cn-beijing",
            "LocalName": "China (Beijing)"
        }
    }
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
400	InvalidParameter	Illegal parameter, query.namespace is not auth.	The error message returned because you are unauthorized to perform the operation. Acquire the permissions and try again.

14.1.2.4.10. DescribeZones

Queries zones in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeZones	The operation that you want to perform. Set the value to **DescribeZones**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.

Response parameters

Parameter	Type	Example	Description
Zones	Array of Zone		The list of zones.
Zone			
ZoneId	String	cn-hangzhou-b	The ID of the zone.
LocalName	String	Hangzhou Zone	The name of the zone.
SlaveZones	Array of SlaveZone		The list of secondary zones.
SlaveZone			
ZoneId	String	cn-hangzhou-g	The ID of the secondary zone.
LocalName	String	Hangzhou Zone G	The name of the secondary zone.

Parameter	Type	Example	Description
RequestId	String	A48D35FF-440A-4BC0-A4A2-A9BF69B7E43A	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeZones
&RegionId=cn-east-hangzhou-01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeZonesResponse>
  <RequestId>3FF183FF-F4AA-40E8-8B5D-90788C6799C2</RequestId>
   <Zones>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-g</ZoneId>
               <LocalName>Hangzhou Zone G</LocalName>
            </SlaveZone>
            <SlaveZone>
               <ZoneId>cn-hangzhou-d</ZoneId>
               <LocalName>Hangzhou Zone D</LocalName>
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-b</ZoneId>
         <LocalName>Hangzhou Zone B</LocalName>
      </Zone>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-e</ZoneId>
               <LocalName>Hangzhou Zone E</LocalName>
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-d</ZoneId>
         <LocalName>Hangzhou Zone D</LocalName>
      </Zone>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-f</ZoneId>
               <LocalName>Hangzhou Zone F</LocalName>
            </SlaveZone>
            <SlaveZone>
               <ZoneId>cn-hangzhou-d</ZoneId>
               <LocalName>Hangzhou Zone D</LocalName>
```

```
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-e</ZoneId>
         <LocalName>Hangzhou Zone E</LocalName>
      </Zone>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-e</ZoneId>
               <LocalName>Hangzhou Zone E</LocalName>
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-f</ZoneId>
         <LocalName>Hangzhou Zone F</LocalName>
      </Zone>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-h</ZoneId>
               <LocalName>Hangzhou Zone H</LocalName>
            </SlaveZone>
            <SlaveZone>
               <ZoneId>cn-hangzhou-b</ZoneId>
               <LocalName>Hangzhou Zone B</LocalName>
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-g</ZoneId>
         <LocalName>Hangzhou Zone G</LocalName>
      </Zone>
      <Zone>
         <SlaveZones>
            <SlaveZone>
               <ZoneId>cn-hangzhou-g</ZoneId>
               <LocalName>Hangzhou Zone G</LocalName>
            </SlaveZone>
         </SlaveZones>
         <ZoneId>cn-hangzhou-h</ZoneId>
         <LocalName>Hangzhou Zone H</LocalName>
      </Zone>
   </Zones>
</DescribeZonesResponse>
```

`JSON` format

```
{
    "DescribeZonesResponse": {
        "RequestId": "3FF183FF-F4AA-40E8-8B5D-90788C6799C2",
        "Zones": {
            "Zone": [
                {
                    "SlaveZones": {
                        "SlaveZone": [
                            {
```

```
                        "ZoneId": "cn-hangzhou-g",
                        "LocalName": "Hangzhou Zone G"
                    },
                    {
                        "ZoneId": "cn-hangzhou-d",
                        "LocalName": "Hangzhou Zone D"
                    }
                ]
            },
            "ZoneId": "cn-hangzhou-b",
            "LocalName": "Hangzhou Zone B"
        },
        {
            "SlaveZones": {
                "SlaveZone": {
                    "ZoneId": "cn-hangzhou-e",
                    "LocalName": "Hangzhou Zone E"
                }
            },
            "ZoneId": "cn-hangzhou-d",
            "LocalName": "Hangzhou Zone D"
        },
        {
            "SlaveZones": {
                "SlaveZone": [
                    {
                        "ZoneId": "cn-hangzhou-f",
                        "LocalName": "Hangzhou Zone F"
                    },
                    {
                        "ZoneId": "cn-hangzhou-d",
                        "LocalName": "Hangzhou Zone D"
                    }
                ]
            },
            "ZoneId": "cn-hangzhou-e",
            "LocalName": "Hangzhou Zone E"
        },
        {
            "SlaveZones": {
                "SlaveZone": {
                    "ZoneId": "cn-hangzhou-e",
                    "LocalName": "Hangzhou Zone E"
                }
            },
            "ZoneId": "cn-hangzhou-f",
            "LocalName": "Hangzhou Zone F"
        },
        {
            "SlaveZones": {
                "SlaveZone": [
                    {
                        "ZoneId": "cn-hangzhou-h",
                        "LocalName": "Hangzhou Zone H"
                    }
```

```
                            },
                            {
                                "ZoneId": "cn-hangzhou-b",
                                "LocalName": "Hangzhou Zone B"
                            }
                        ]
                    },
                    "ZoneId": "cn-hangzhou-g",
                    "LocalName": "Hangzhou Zone G"
                },
                {
                    "SlaveZones": {
                        "SlaveZone": {
                            "ZoneId": "cn-hangzhou-g",
                            "LocalName": "Hangzhou Zone G"
                        }
                    },
                    "ZoneId": "cn-hangzhou-h",
                    "LocalName": "Hangzhou Zone H"
                }
            ]
        }
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidParameter	Illegal parameter, query.namespace is not auth.	The error message returned because you are unauthorized to perform the operation. Request the permissions and try again.

14.1.2.5. Listeners

14.1.2.5.1. TCP listeners

14.1.2.5.1.1. CreateLoadBalancerTCPListener

Creates a TCP listener.

Note Newly created listeners are in the Stopped state. After a listener is created, you can call the `StartLoadBalancerListener` operation to enable the listener to forward traffic.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateLoadBalancerTCPListener	The operation that you want to perform. Set the value to **CreateLoadBalancerTCPListener**.
Bandwidth	Integer	Yes	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **1 to 5120** and **-1**. • **-1**: For a pay-by-data-transfer Internet-facing Server Load Balancer (SLB) instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited. • **1 to 5120**: For a pay-by-bandwidth Internet-facing SLB instance, you can specify the bandwidth limit of each listener. The sum of bandwidth limit values that you set for all listeners cannot exceed the bandwidth limit of the SLB instance.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.
BackendServerPort	Integer	No	80	The backend port that is used by the SLB instance. Valid values: **1 to 65535**. If the **VServerGroupId** parameter is not set, this parameter is required.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence. • **sch**: specifies consistent hashing that is based on source IP addresses. Requests from the same source IP address are distributed to the same backend server. • **tch**: specifies consistent hashing that is based on four factors: source IP address, destination IP address, source port, and destination port. Requests that contain the same preceding information are distributed to the same backend server. **Note** Only high-performance SLB instances support the sch and tch consistent hashing algorithms.
PersistenceTimeout	Integer	No	0	The timeout period of session persistence. Valid values: **0 to 3600**. Unit: seconds. Default value: **0**. By default, session persistence is disabled.

Parameter	Type	Required	Example	Description
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2 to 10**.
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2 to 10**.
HealthCheckConnectTimeout	Integer	No	100	The timeout period of a health check response. Valid values: **1 to 300**. Unit: seconds. Default value: **5**.
HealthCheckConnectPort	Integer	No	80	The port that is used for health checks. Valid values: **1 to 65535**. If you do not set this parameter, the port of the backend server is used for health checks.
healthCheckInterval	Integer	No	3	The interval between two consecutive health checks. Valid values: **1 to 50**. Unit: seconds.

Parameter	Type	Required	Example	Description
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. Valid values: • **$_ip**: The private IP address of the backend server. If the $_ip parameter is set or the HealthCheckDomain parameter is not set, SLB uses the private IP addresses of backend servers as the domain names for health checks. • **domain**: The domain name must be 1 to 80 characters in length, and can contain only letters, digits, periods (.),and hyphens (-).
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The value must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), number signs (#), and ampersands (&). The URL must not be a single forward slash (/). However, it must start with a forward slash (/). You can set this parameter to enable HTTP health checks for the TCP listener. If this parameter is not set, TCP health checks are performed.
HealthCheckHttpCode	String	No	http_2xx,http_3xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. Default value: http_2xx.
HealthCheckType	String	No	tcp	The type of health checks. Valid values: **tcp** and **http**. Default value: tcp.
VServerGroupId	String	No	rsp-cige6j****	The ID of the vServer group.

Parameter	Type	Required	Example	Description
MasterSlaveServerGroupId	String	No	rsp-0bfucw****	The ID of the primary/secondary server group. **Note** You cannot specify both VServerGroupId and MasterSlaveServerGroupId.
EstablishedTimeout	Integer	No	500	The timeout period of a connection. Valid values: **10 to 900**. Unit: seconds.
Description	String	No	CreateListeners.	The description of the listener. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateLoadBalancerTCPListener
&Bandwidth=-1
&ListenerPort=80
&LoadBalancerId=lb-bp1b6c719dfa08ex******
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateLoadBalancerTCPListenerResponse>
     <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</CreateLoadBalancerTCPListenerResponse>
```

`JSON` format

```
{"RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"}
```

Error codes

HttpCode	Error code	Error message	Description
400	Abs.VServerGroupIdAndMasterSlaveServerGroupId.MissMatch	The parameters VServerGroupId or MasterSlaveServerGroupId miss match.	The error message returned because the VServerGroupId parameter or the MasterSlaveServerGroupId parameter does not match.

14.1.2.5.1.2. SetLoadBalancerTCPListenerAttribute

Modifes the configurations of a TCP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancerTCPListenerAttribute	The operation that you want to perform. Set the value to **SetLoadBalancerTCPListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1** to **65535**.
LoadBalancerId	String	Yes	lb-bp1ygod3yctvg1y****	The ID of the SLB instance.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	No	43	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **-1** and **1 to 5120**. • **-1**: For a pay-by-data-transfer Internet-facing SLB instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited. • **1 to 5120**: For a pay-by-bandwidth Internet-facing SLB instance, you can specify the bandwidth limit of each listener. The sum of bandwidth limit values that you set for all listeners cannot exceed the bandwidth limit of the SLB instance.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr**: Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence. • **sch**: specifies consistent hashing that is based on source IP addresses. Requests from the same source IP address are distributed to the same backend server. • **tch**: specifies consistent hashing that is based on four factors: source IP address, destination IP address, source port, and destination port. Requests that contain the same preceding information are distributed to the same backend server. **Note** Only high-performance SLB instances support the sch and tch consistent hashing algorithms.
PersistenceTimeout	Integer	No	0	The timeout period of session persistence. Valid values: **0** to **3600**. Unit: seconds. Default value: **0**. If you set the value to 0, session persistence is disabled.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2** to **10**.

Parameter	Type	Required	Example	Description
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2** to **10**.
HealthCheckConnectTimeout	Integer	No	100	The timeout period for a health check response. If a backend server does not respond within the specified timeout period, the health check fails. Valid values: **1** to **300**. Unit: seconds. **Note** If the value of the **HealthCheckConnectTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HCTimeout** parameter is ignored and the value of the **HealthCheckInterval** parameter is used as the timeout period.
HealthCheckConnectPort	Integer	No	8080	The port that is used for health checks. Valid values: **1** to **65535**. If this parameter is not set, the port specified in **BackendServerPort** is used for health checks.
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1** to **50**. Unit: seconds.

Parameter	Type	Required	Example	Description
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. You can set this parameter when the TCP listener requires HTTP health checks. If you do not set this parameter, TCP health checks are performed. • **$_ip**: The private IP address of the backend server. If you do not set this parameter or set the parameter to $_ip, the SLB instance uses the private IP address of each backend server as the domain name for health checks. • **domain**: The domain name must be 1 to 80 characters in length. It can contain only letters, digits, periods (.),and hyphens (-).
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The URL must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), question marks (?), number signs (#), and ampersands (&). The URL must not be a single forward slash (/). However, it must start with a forward slash (/). You can set this parameter when the TCP listener requires HTTP health checks. If you do not set this parameter, TCP health checks are performed.)
HealthCheckHttpCode	String	No	http_2xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**.
HealthCheckType	String	No	tcp	The type of health checks. Valid values: **tcp** and **http**.

Parameter	Type	Required	Example	Description
SynProxy	String	No	enable	Specifies whether to enable SynProxy to protect backend servers against attacks. We recommend that you use the default value for this parameter. Valid values: **enable** and **disable**.
MaxConnection	Integer	No	20	The maximum number of connections.
Tags	String	No	{"tagKey":"Key1", "tagValue":"Value1"}	The key and value of the tag.
VServerGroup	String	No	on	Specifies whether to use a vServer group. Valid values: **on** and **off**. You cannot set both **VserverGroup** and **MasterSlaveServerGroup** to **on**.
VServerGroupId	String	No	rsp-cige6j5****	The ID of the vServer group.
MasterSlaveServerGroupId	String	No	rsp-cige****	The ID of the primary/secondary server group. **Note** You cannot specify both VServerGroupId and MasterSlaveServerGroupId.
MasterSlaveServerGroup	String	No	on	Specifies whether to use a primary/secondary server group. Valid values: **on** and **off**. You cannot set both **VserverGroup** and **MasterSlaveServerGroup** to **on**.
EstablishedTimeout	Integer	No	500	The timeout period of connections. Valid values: **10** to **900**. Unit: seconds.
Description	String	No	test	The description of the TCP listener.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerTCPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1ygod3yctvg1y****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerTCPListenerAttributeResponse>
     <RequestId>59B41B53-BC4B-481A-9D8D-2A0D20B3FCD1</RequestId>
</SetLoadBalancerTCPListenerAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "59B41B53-BC4B-481A-9D8D-2A0D20B3FCD1"
}
```

14.1.2.5.1.3. DescribeLoadBalancerTCPListenerAttribute

Queries the configurations of a TCP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancerTCPListenerAttribute	The operation that you want to perform. Set the value to **DescribeLoadBalancerTCPListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.

Parameter	Type	Required	Example	Description
LoadBalancerId	String	Yes	lb-bp1ygod3yctvg1y****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
ListenerPort	Integer	80	The frontend port that is used by the SLB instance.
BackendServerPort	Integer	80	The backend port that is used by the SLB instance. **Note** When the SLB instance uses a vServer group, this parameter is not displayed.
Bandwidth	Integer	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: • **-1**: For a pay-by-data-transfer Internet-facing SLB instance, this value is set to -1. This indicates that the bandwidth is unlimited. • **1** to **5120**: For a pay-by-bandwidth Internet-facing SLB instance, a bandwidth limit is set for each listener. The sum of bandwidth limit values that are set for all listeners of an SLB instance does not exceed the bandwidth limit of the SLB instance.
Status	String	stopped	The state of the listener. Valid values: **running** and **stopped**. • **running**: indicates that the listener runs as expected. • **stopped**: indicates that the listener is stopped.

Parameter	Type	Example	Description
SynProxy	String	enable	Indicates whether SynProxy is enabled. SynProxy is a feature that protects SLB from attacks. We recommend that you use the default value for this parameter. Valid values: • **Enable**: SynProxy is enabled. • **Disable**: SynProxy is disabled.
Scheduler	String	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
PersistenceTimeout	Integer	0	Indicates whether session persistence is enabled. If the value is set to **0**, it indicates that session persistence is disabled.
HealthCheckType	String	tcp	The health check method that is used by the TCP listener. Valid values: **tcp** and **http**.
HealthCheck	String	on	Indicates whether health checks are enabled. Valid values: **on** and **off**.
HealthyThreshold	Integer	4	The healthy threshold.
UnhealthyThreshold	Integer	4	The unhealthy threshold.
HealthCheckConnectPort	Integer	8080	The port that is used for health checks.

Parameter	Type	Example	Description
HealthCheckInterval	Integer	5	The interval between two consecutive health checks. Unit: seconds.
HealthCheckDomain	String	www.domain.com	The domain name that is used for health checks.
HealthCheckURI	String	/test/index.html	The URL that is used for health checks. The value must be 1 to 80 characters in length, and can contain letters, digits, `hyphens (-), forward slashes (/), periods (.),%?number signs (#), and ampersands (&)`. The URL must not be a single forward slash (/) and it must start with a forward slash (/).
HealthCheckHttpCode	String	http_2xx	The HTTP status code that indicates a successful health check. Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. Default value: http_2xx.
VServerGroupId	String	rsp-cige6******8	The ID of the associated vServer group.
Description	String	Description.	The description of the listener. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
EstablishedTimeout	Integer	500	The timeout period of connections. Valid values: **10 to 900**. Unit: seconds.
HealthCheckConnectTimeout	Integer	100	The timeout period of a health check response.
MasterSlaveServerGroupId	String	rsp-0bfucw****	The ID of the primary/secondary server group that is associated with the listener.
MaxConnection	Integer	10	The maximum number of connections.

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancerTCPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1ygod3yctvg1y******
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancerTCPListenerAttributeResponse>
     <HealthCheckHttpCode>http_2xx,http_3xx</HealthCheckHttpCode>
   <PersistenceTimeout>0</PersistenceTimeout>
   <HealthCheckType>tcp</HealthCheckType>
   <HealthyThreshold>3</HealthyThreshold>
   <Scheduler>wrr</Scheduler>
   <UnhealthyThreshold>3</UnhealthyThreshold>
   <Bandwidth>-1</Bandwidth>
   <Description>tcp_80</Description>
   <AclStatus>off</AclStatus>
   <HealthCheckURI>/</HealthCheckURI>
   <HealthCheck>on</HealthCheck>
   <HealthCheckConnectTimeout>5</HealthCheckConnectTimeout>
   <ListenerPort>80</ListenerPort>
   <Status>running</Status>
   <EstablishedTimeout>900</EstablishedTimeout>
   <HealthCheckDomain></HealthCheckDomain>
   <HealthCheckInterval>2</HealthCheckInterval>
   <RequestId>9A113A8C-BB8F-475E-9533-7819ECA2FFC1</RequestId>
   <BackendServerPort>80</BackendServerPort>
    </DescribeLoadBalancerTCPListenerAttributeResponse>
```

`JSON` format

```
{
    "HealthCheckHttpCode": "http_2xx,http_3xx",
    "PersistenceTimeout": 0,
    "HealthCheckType": "tcp",
    "HealthyThreshold": 3,
    "Scheduler": "wrr",
    "UnhealthyThreshold": 3,
    "Bandwidth": -1,
    "Description": "tcp_80",
    "AclStatus": "off",
    "HealthCheckURI": "/",
    "HealthCheck": "on",
    "HealthCheckConnectTimeout": 5,
    "ListenerPort": 80,
    "Status": "running",
    "EstablishedTimeout": 900,
    "HealthCheckDomain": "",
    "HealthCheckInterval": 2,
    "RequestId": "9A113A8C-BB8F-475E-9533-7819ECA2FFC1",
    "BackendServerPort": 80
}
```


14.1.2.5.2. UDP listeners

14.1.2.5.2.1. CreateLoadBalancerUDPListener

Creates a UDP listener.

> **Note** You cannot view the source IP addresses of network traffic if you create UDP listeners for a Server Load Balancer (SLB) instance that is deployed in a classic network. In addition, newly created listeners are in the **stopped** state. After a listener is created, you must call the StartLoadBalancerListener operation to enable the listener. This way, the listener can forward network traffic.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateLoadBalancerUDPListener	The operation that you want to perform. Set the value to **CreateLoadBalancerUDPListener**.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	Yes	34	The bandwidth limit of the listener. Unit: Mbit/s. Set the value to **-1**.For a pay-by-data-transfer Internet-facing SLB instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1ygod3yctvg1y7****	The ID of the SLB instance.
BackendServerPort	Integer	No	80	The backend port that is used by the SLB instance. Valid values: **1 to 65535**. If the **VServerGroupId** parameter is not set, this parameter is required.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence. • **sch**: specifies consistent hashing that is based on source IP addresses. Requests from the same source IP address are distributed to the same backend server. • **tch**: specifies consistent hashing that is based on four factors: source IP address, destination IP address, source port, and destination port. Requests that contain the same preceding information are distributed to the same backend server. • **qch**: specifies consistent hashing that is based on QUIC connection IDs. Requests that contain the same QUIC connection ID are distributed to the same backend server. **Note** Only high-performance SLB instances support the sch, tch, and qch consistent hashing algorithms.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2 to 10**.

Parameter	Type	Required	Example	Description
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2 to 10**.
HealthCheckConnectTimeout	Integer	No	100	The timeout period for a health check response. If a backend server does not respond within the specified timeout period, the backend server is declared unhealthy. Valid values: **1 to 300**. Unit: seconds.
HealthCheckConnectPort	Integer	No	80	The port that is used for health checks. Valid values: **1 to 65535**. If you do not specify this parameter, the backend port is used to send health check probes.
healthCheckInterval	Integer	No	3	The interval between two consecutive health checks. Valid values: **1 to 50**. Unit: seconds.
healthCheckReq	String	No	hello	Specifies the request string for UDP listener health checks. The request string must be 1 to 500 characters in length, and can contain only letters and digits.
healthCheckExp	String	No	ok	Specifies the response string for UDP listener health checks. The response string must be 1 to 500 characters in length, and can contain only letters and digits.
VServerGroupId	String	No	rsp-cige6j****8	The ID of the vServer group.

Parameter	Type	Required	Example	Description
MasterSlaveServerGroupId	String	No	rsp-0bfucwu****	The ID of the primary/secondary server group. **Note** You cannot specify both VServerGroupId and MasterSlaveServerGroupId.
Description	String	No	test	The description of the listener. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateLoadBalancerUDPListener
&Bandwidth=34
&ListenerPort=80
&LoadBalancerId=lb-bp1ygod3yctvg1y7******
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateLoadBalancerUDPListenerResponse>
      <RequestId>06F00FBB-3D9E-4CCE-9D43-1A6946A75456</RequestId>
</CreateLoadBalancerUDPListenerResponse>
```

`JSON` format

```
{
    "RequestId": "06F00FBB-3D9E-4CCE-9D43-1A6946A75456"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	Abs.VServerGroupId AndMasterSlaveServ erGroupId.MissMatch	The parameters VServerGroupId or MasterSlaveServerGroupId miss match.	The error message returned because the VServerGroupId parameter or the MasterSlaveServerGroupId parameter does not match.

14.1.2.5.2.2. SetLoadBalancerUDPListenerAttribute

Modifies the configurations of a UDP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancer UDPListenerAttrib ute	The operation that you want to perform. Set the value to **SetLoadBalancerUDPListenerAttrib ute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1** to **65535**.
LoadBalancerId	String	Yes	lb-bp1rtfnodmywb4 3ecu4sf-c****	The ID of the SLB instance.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	No	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **1 to 5120** and **-1**. • **-1**: For a pay-by-data-transfer Internet-facing SLB instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited. • **1 to 5120**: For a pay-by-bandwidth Internet-facing SLB instance, you can specify a value as the bandwidth limit for each listener. The sum of maximum bandwidth values that you set for all listeners cannot exceed the bandwidth limit of the SLB instance. For more information, see Bandwidth limit of a shared-resource SLB instance.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr**: Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence. • **sch**: specifies consistent hashing that is based on source IP addresses. Requests from the same source IP address are distributed to the same backend server. • **tch**: specifies consistent hashing that is based on four factors: source IP address, destination IP address, source port, and destination port. Requests that contain the same preceding information are distributed to the same backend server. • **qch**: specifies consistent hashing that is based on QUIC connection IDs. Requests that contain the same QUIC connection ID are distributed to the same backend server. **Note** Only high-performance SLB instances support the sch, tch, and qch consistent hashing algorithms.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2** to **10**.

Parameter	Type	Required	Example	Description
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2** to **10**.
HealthCheckConnectTimeout	Integer	No	100	The timeout period for a health check response. If a backend server does not respond within the specified timeout period, the backend server is declared unhealthy. Valid values: **1** to **300**. **Note** If the value of the **HealthCheckConnectTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HealthCheckConnectTimeout** parameter is ignored and the value of the **HealthCheckInterval** parameter is regarded as the timeout period.
HealthCheckConnectPort	Integer	No	80	The port that is used for health checks. Valid values: **1** to **65535**.
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1** to **50**. Unit: seconds.
healthCheckReq	String	No	hello	The request string for UDP listener health checks. The string must be 1 to 500 characters in length and can contain only letters and digits.

Parameter	Type	Required	Example	Description
healthCheckExp	String	No	ok	The response string for UDP listener health checks. The string must be 1 to 500 characters in length and can contain only letters and digits.
MaxConnection	Integer	No	10	The maximum number of connections.
Tags	String	No	{"tagKey":"Key1", "tagValue":"Value1"}	The key and value of the tag.
VServerGroup	String	No	on	Specifies whether to use a vServer group. Valid values: **on** and **off**. **Note** You cannot set both **VserverGroup** and **MasterSlaveServerGroup** to **on**.
VServerGroupId	String	No	rsp-cige6****	The ID of the vServer group.
MasterSlaveServerGroupId	String	No	rsp-0bfuc****	The ID of the primary/secondary server group. **Note** You cannot specify both VServerGroupId and MasterSlaveServerGroupId.
MasterSlaveServerGroup	String	No	on	Specifies whether to use a primary/secondary server group. Valid values: **on** and **off**. You cannot set both **VserverGroup** and **MasterSlaveServerGroup** to **on**.
Description	String	No	test	The description of the listener.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerUDPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1rtfnodmywb43ecu4sf-c****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerUDPListenerAttributeResponse>
     <RequestId>A0F0643E-D653-4F6F-A67F-205B2A92BE18</RequestId>
</SetLoadBalancerUDPListenerAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "A0F0643E-D653-4F6F-A67F-205B2A92BE18"
}
```

14.1.2.5.2.3. DescribeLoadBalancerUDPListenerAttribute

Queries the configurations of a UDP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancerUDPListenerAttribute	The operation that you want to perform. Set the value to **DescribeLoadBalancerUDPListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.

Parameter	Type	Required	Example	Description
LoadBalancerId	String	Yes	lb-bp1rtfnodmywb43e****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
ListenerPort	Integer	80	The frontend port that is used by the SLB instance.
BackendServerPort	Integer	53	The backend port that is used by the SLB instance. **Note** If the listener is associated with a vServer group, this parameter is not returned.
Bandwidth	Integer	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: • **-1**: For a pay-by-data-transfer Internet-facing SLB instance, this value is set to -1. This indicates that the bandwidth is unlimited. • **1** to **5120**: For a pay-by-bandwidth Internet-facing SLB instance, each listener has a bandwidth limit. The sum of bandwidth limit values that are set for all listeners of an SLB instance does not exceed the bandwidth limit of the SLB instance.
Status	String	stopped	The state of the listener. Valid values: **running** and **stopped**. • **running**: indicates that the listener runs as expected. • **stopped**: indicates that the listener is stopped.

Parameter	Type	Example	Description
Scheduler	String	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
HealthCheck	String	on	Indicates whether health checks are enabled. Valid values: **on** and **off**.
HealthyThreshold	Integer	4	The healthy threshold.
UnhealthyThreshold	Integer	4	The unhealthy threshold.
HealthCheckConnectTimeout	Integer	100	The timeout period for a health check response.
HealthCheckConnectPort	Integer	8080	The port that is used for health checks. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckInterval	Integer	5	The interval between two consecutive health checks. Unit: seconds.
VServerGroupId	String	rsp-cige6j****	The ID of the vServer group that is associated with the listener.
Description	String	AccessControlDescription.	The description of access control.
HealthCheckExp	String	ok	The response string for UDP listener health checks.

Parameter	Type	Example	Description
HealthCheckReq	String	hello	The request string for UDP listener health checks.
MasterSlaveServerGroupId	String	rsp-0bfucw****	The ID of the primary/secondary server group that is associated with the listener.
MaxConnection	Integer	10	The maximum number of connections.
PersistenceTimeout	Integer	0	The timeout period of session persistence.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancerUDPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1rtfnodmywb43e****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancerUDPListenerAttributeResponse>
    <AclStatus>off</AclStatus>
    <HealthCheck>on</HealthCheck>
    <HealthCheckConnectTimeout>5</HealthCheckConnectTimeout>
    <PersistenceTimeout>0</PersistenceTimeout>
    <ListenerPort>80</ListenerPort>
    <Status>stopped</Status>
    <Scheduler>wrr</Scheduler>
    <HealthyThreshold>3</HealthyThreshold>
    <HealthCheckInterval>2</HealthCheckInterval>
    <RequestId>9C103591-2533-432B-9E6B-6DB098C0E65C</RequestId>
    <UnhealthyThreshold>3</UnhealthyThreshold>
    <BackendServerPort>34</BackendServerPort>
    <Bandwidth>67</Bandwidth>
</DescribeLoadBalancerUDPListenerAttributeResponse>
```

`JSON` format

```
{
 "AclStatus":"off",
 "HealthCheck":"on",
 "HealthCheckConnectTimeout":5,
 "PersistenceTimeout":0,
 "ListenerPort":80,
 "Status":"stopped",
 "Scheduler":"wrr",
 "HealthyThreshold":3,
 "HealthCheckInterval":2,
 "RequestId":"9C103591-2533-432B-9E6B-6DB098C0E65C",
 "UnhealthyThreshold":3,
 "BackendServerPort":34,
 "Bandwidth":67
}
```


14.1.2.5.3. HTTP listeners

14.1.2.5.3.1. CreateLoadBalancerHTTPListener

Creates an HTTP listener.

> **Note** Newly created listeners are in the **stopped** state.

After a listener is created, you can call the `StartLoadBalancerListener` operation to enable the listener to forward traffic.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateLoadBalancerHTTPListener	The operation that you want to perform. Set the value to **CreateLoadBalancerHTTPListener**.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	Yes	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: • **-1**: If you set the value to -1, the bandwidth of the listener is unlimited. • **1 to 5120**: If you set a value from 1 to 5120, the value that you specify equals the bandwidth limit of the listener. The sum of bandwidth limit values that you specify for all listeners of the Server Load Balancer (SLB) instance cannot exceed the bandwidth limit of the SLB instance. **Note** This parameter applies only to mainland China.
HealthCheck	String	Yes	on	Specifies whether to enable health checks. Valid values: **on** and **off**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1c9vixxjh92q83tw****	The ID of the SLB instance.
StickySession	String	Yes	off	Specifies whether to enable session persistence. Valid values: **on** and **off**.
BackendServerPort	Integer	No	80	The backend port that is used by the SLB instance. Valid values: **1 to 65535**. **Note** If the VServerGroupId parameter is not set, this parameter is required.

Parameter	Type	Required	Example	Description
XForwardedFor	String	No	on	Specifies whether to use the `X-Forwarded-For` header to obtain the real IP address of the client. Set the value to **on**.
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.

Parameter	Type	Required	Example	Description
StickySessionType	String	No	insert	The method that is used to handle a cookie. Valid values: • **insert**: inserts a cookie. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will forward this request to the recorded backend server. • **server**: rewrites a cookie. When SLB detects a user-defined cookie, it overwrites the original cookie with the user-defined cookie. The next request from the client will contain the user-defined cookie, and the listener will forward the request to the recorded backend server. **Note** If you set the **StickySession** parameter to **on**, this parameter is required.
CookieTimeout	Integer	No	500	The timeout period of a cookie. Valid values: **1 to 86400**. Unit: seconds. **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **insert**, this parameter is required.

Parameter	Type	Required	Example	Description
Cookie	String	No	B490B5EBF6F3CD402E515D22BCDA1598	The cookie to be configured on the backend server. The value must be 1 to 200 characters in length, and can contain only ASCII characters and digits. It cannot contain commas (,), semicolons (;), or space characters. It cannot start with a dollar sign ($). **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **server**, this parameter is required.
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. Valid values: • **$_ip**: The private IP address of the backend server. If the $_ip parameter is set or the HealthCheckDomain parameter is not set, SLB uses the private IP addresses of backend servers as the domain names for health checks. • **domain**: The domain name must be 1 to 80 characters in length. It can contain only letters, digits, periods (.),and hyphens (-). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The value must be 1 to 80 characters in length, and can contain letters, digits, `hyphens (-), forward slashes (/), periods (.),%?number signs (#), and ampersands (&)`. The URL must not be a single forward slash (/) and it must start with a forward slash (/). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckTimeout	Integer	No	3	The timeout period of a health check response. If a backend server does not respond within the specified timeout period, the backend server is declared unhealthy. This parameter takes effect only when the **HealthCheck** parameter is set to **on**. Valid values: **1 to 300**. Unit: seconds. **Note** If the value of the **HealthCHeckTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HealthCHeckTimeout** parameter is invalid and the value of the **HealthCheckInterval** parameter is used as the timeout period.
HealthCheckConnectPort	Integer	No	80	The backend port that is used for health checks. Valid values: **1 to 65535**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1 to 50**. Unit: seconds. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckHttpCode	String	No	http_2xx,http_3xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Default value: **http_2xx**. Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
VServerGroupId	String	No	rsp-cige6j****	The ID of the vServer group.
XForwardedFor_SLBIP	String	No	on	Specifies whether to use the `SLB-IP` header to obtain the real IP address of the client. Valid values: **on** and **off**. Default value: off.
XForwardedFor_SLBID	String	No	on	Specifies whether to use the `SLB-ID` header to obtain the ID of the SLB instance. Valid values: **on** and **off**. Default value: off.

Parameter	Type	Required	Example	Description
XForwardedFor_proto	String	No	on	Specifies whether to use the `X-Forwarded-Proto` header to obtain the listener protocol of the SLB instance. Valid values: **on** and **off**. Default value: off.
Gzip	String	No	on	Specifies whether to enable gzip compression to compress specific types of files. Default value: **on**. Valid values: **on** and **off**. Default value: off.
IdleTimeout	Integer	No	3	The timeout period of an idle connection. Unit: seconds. Valid values: 1 to 60. Default value: 15. If no request is received during the specified timeout period, the SLB instance closes the connection. When another request is received, the SLB instance establishes a new connection.
RequestTimeout	Integer	No	6	The timeout period of a request. Unit: seconds. Valid values: 1 to 180. Default value: 60. If no response is received from the backend server within the specified timeout period, SLB sends an `HTTP 504` error code to the client.
ListenerForward	String	No	off	Specifies whether to enable HTTP-to-HTTPS redirection. Valid values: **on** and **off**.
ForwardPort	Integer	No	443	The listening port that is used to redirect HTTP requests to HTTPS.

Parameter	Type	Required	Example	Description
Description	String	No	ListenerDescription	The description of the listener. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateLoadBalancerHTTPListener
&HealthCheck=off
&ListenerPort=80
&LoadBalancerId=lb-bp1c9vixxjh92q83tw*****
&StickySession=off
&BackendServerPort=80
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateLoadBalancerHTTPListenerResponse>
   <RequestId>1FF504CB-BFFF-4508-A51A-58A416604FC8</RequestId>
</CreateLoadBalancerHTTPListenerResponse>
```

`JSON` format

```
{
    "RequestId": "1FF504CB-BFFF-4508-A51A-58A416604FC8"
}
```

14.1.2.5.3.2. SetLoadBalancerHTTPListenerAttribute

Modifies the configurations of an HTTP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancerHTTPListenerAttribute	The operation that you want to perform. Set the value to **SetLoadBalancerHTTPListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1** to **65535**.
LoadBalancerId	String	Yes	lb-bp1qjwo61pqz3ah****	The ID of the SLB instance.
Bandwidth	Integer	No	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **-1**: For a pay-by-data-transfer Internet-facing SLB instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited.
XForwardedFor	String	No	on	Specifies whether to use the **X-Forwarded-For** header to obtain the real IP address of the client. Set the value to **on**.
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr**: Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
StickySession	String	No	on	Specifies whether to enable session persistence. Valid values: **on** and **off**.

Parameter	Type	Required	Example	Description
StickySessionType	String	No	insert	The method that is used to handle a cookie. Valid values: • **insert**: inserts a cookie. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will forward this request to the recorded backend server. • **server**: rewrites a cookie. When SLB detects a user-defined cookie, it overwrites the original cookie with the user-defined cookie. The next request from the client will contain the user-defined cookie, and the listener will forward the request to the recorded backend server. **Note** If you set the **StickySession** parameter to **on**, this parameter is required.
CookieTimeout	Integer	No	500	The timeout period of a cookie. Valid values: **1** to **86400**. Unit: seconds. **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **insert**, this parameter is required.

Parameter	Type	Required	Example	Description
Cookie	String	No	B490B5EBF6F3CD402E515D22BCDA1598	The cookie to be configured on the backend server. The value must be **1** to **200** characters in length, and can contain only ASCII letters and digits. It cannot contain commas (,), semicolons (;), or space characters. It cannot start with a dollar sign ($). **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **server**, this parameter is required.
HealthCheck	String	No	on	Specifies whether to enable health checks. Valid values: **on** and **off**.
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. Valid values: • **$_ip**: The private IP address of the backend server. If the $_ip parameter is specified or the HealthCheckDomain parameter is not specified, the SLB instance uses the private IP address of the backend server as the domain name for health checks. • **domain**: The domain name must be 1 to 80 characters in length. It can contain only letters, digits, periods (.),and hyphens (-). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The value must be 1 to 80 characters in length, and can contain only letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), question marks (?), number signs (#), and ampersands (&). The URL must not be a single forward slash (/). However, it must start with a forward slash (/). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2** to **10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2** to **10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckTimeout	Integer	No	3	The timeout period of a health check response. If a backend server does not respond within the specified timeout period, the health check fails. This parameter takes effect only when the **HealthCheck** parameter is set to **on**. Valid values: **1** to **300**. Unit: seconds. **Note** If the value of the **HealthCHeckTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HealthCHeckTimeout** parameter is invalid and the value of the **HealthCheckInterval** parameter is used as the timeout period.
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1** to **50**. Unit: seconds. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckConnectPort	Integer	No	8080	The port that is used for health checks. Valid values: **1** to **65535**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckHttpCode	String	No	http_2xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
MaxConnection	Integer	No	10	The maximum number of connections.
VServerGroup	String	No	on	Specifies whether to use a vServer group. Valid values: **on** and **off**.
VServerGroupId	String	No	rsp-cige6j****	The ID of the server group.
Tags	String	No	{"tagKey":"Key1","tagValue":"Value1"}	The key and value of the tag.
XForwardedFor_SLBIP	String	No	on	Specifies whether to use the `SLB-IP` header to obtain the real IP address of the client. Valid values: **on** and **off**.
XForwardedFor_SLBID	String	No	on	Specifies whether to use the `SLB-ID` header to obtain the ID of the SLB instance. Valid values: **on** and **off**.

Parameter	Type	Required	Example	Description
XForwardedFor_proto	String	No	on	Specifies whether to use the `X-Forwarded-Proto` header to obtain the listener protocol of the SLB instance. Valid values: **on** and **off**.
Gzip	String	No	on	Specifies whether to enable gzip compression to compress specific types of files. Valid values: **on** and **off**.
IdleTimeout	Integer	No	12	The timeout period of an idle connection. Unit: seconds. Valid values: **1** to **60**. Default value: **15**. If no request is received within the specified timeout period, SLB closes the connection. When another request is received, SLB establishes a new connection.
RequestTimeout	Integer	No	3	The timeout period of a request. Unit: seconds. Valid values: **1** to **180**. Default value: **60**. If no response is received from the backend server within the specified timeout period, SLB sends an `HTTP 504` error code to the client.
Description	String	No	test	The description of the listener.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerHTTPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1qjwo61pqz3ah****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerHTTPListenerAttributeResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</SetLoadBalancerHTTPListenerAttributeResponse>
```

`JSON` format

```
{"RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
        }
```

14.1.2.5.3.3. DescribeLoadBalancerHTTPListenerAttribute

Queries the configurations of an HTTP listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancerHTTPListenerAttribute	The operation that you want to perform. Set the value to **DescribeLoadBalancerHTTPListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1o94dp5****	The ID of the SLB instance.
Tags	String	No	{"tagKey":"Key1", "tagValue":"Value1"}	The key and value of the tag.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
ListenerPort	Integer	80	The frontend port that is used by the SLB instance.
Bandwidth	Integer	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: • **-1**: If the value is set to -1, this indicates that the bandwidth of the listener is unlimited. • **1 to 5120**: If a value from 1 to 5120 is set, the specified value indicates the bandwidth limit of the listener. The sum of bandwidth limit values that are specified for all listeners of the SLB instance must not exceed the bandwidth limit of the SLB instance. **Note** This parameter applies only to mainland China.
Status	String	stopped	The state of the listener. Valid values: **running** and **stopped**. • **running**: The listener runs as expected. • **stopped**: The listener is stopped.
XForwardedFor	String	on	Indicates whether the X-Forwarded-For header is added to obtain the real IP address of the client. Valid values: **on** and **off**.

Parameter	Type	Example	Description
Scheduler	String	wrr	The scheduling algorithm. Valid values: **wrr**, **wlc**, and **rr**. • **wrr**: Backend servers that have higher weights receive more requests than backend servers that have lower weights. This is the default value. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
StickySession	String	on	Indicates whether session persistence is enabled. Valid values: **on** and **off**. Default value: off.
StickySessionType	String	insert	The method that is used to handle a cookie. Valid values: **insert** and **server**. • **insert**: inserts a cookie into the response. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will forward this request to the recorded backend server. • **server**: rewrites the original cookie. When SLB detects a user-defined cookie, it overwrites the original cookie with the user-defined cookie. The next request from the client will contain the user-defined cookie, and the listener will distribute the request to the recorded backend server. **Note** If the **StickySession** parameter is set to **on**, this parameter is required.
CookieTimeout	Integer	500	The timeout period of a cookie.

Parameter	Type	Example	Description
Cookie	String	B490B5EBF6F3CD402E515D22BCDA1598	The cookie that is configured on the backend server. The value is 1 to 200 characters in length, and can contain only ASCII letters and digits. It cannot contain commas (,), semicolons (;), or space characters. It cannot start with a dollar sign ($).
HealthCheck	String	on	Indicates whether health checks are enabled. Valid values: **on** and **off**.
HealthCheckDomain	String	www.domain.com	The domain name that is used for health checks.
HealthCheckURI	String	/test/index.html	The URL that is used for health checks. The URL is 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), question marks (?), number signs (#), and ampersands (&). The URL must not be a single forward slash (/). However, it must start with a forward slash (/).)
HealthyThreshold	Integer	4	The healthy threshold.
UnhealthyThreshold	Integer	4	The unhealthy threshold.
HealthCheckTimeout	Integer	3	The timeout period of a health check response. Valid values: 1 to 300. Unit: seconds.
HealthCheckInterval	Integer	5	The interval between two consecutive health checks. Valid values: 1 to 50. Unit: seconds.

Parameter	Type	Example	Description
HealthCheckHttpCode	String	http_2xx	The HTTP status code that indicates a successful health check. Multiple HTTP status codes are separated by commas (,). Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. Default value: http_2xx. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckConnectPort	Integer	8080	The port that is used for health checks. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
VServerGroupId	String	rsp-cige6j****	The ID of the associated vServer group.
Gzip	String	on	Indicates whether gzip compression is enabled to compress specific types of files. Valid values: **on** and **off**.
BackendServerPort	Integer	80	The backend port that is used by the SLB instance.
Description	String	test	The description of the HTTP listener. The description is 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_).
ForwardPort	Integer	80	The listening port that is used to redirect HTTP requests to HTTPS. **Note** If the value of the **ListenerForward** parameter is set to **off**, this parameter is not displayed.

Parameter	Type	Example	Description
IdleTimeout	Integer	2	The timeout period of an idle connection. Valid values: **1 to 60**. Unit: seconds. Default value: **15**. If no request is received within the specified timeout period, SLB closes the connection. SLB starts a new connection when it receives a new connection request.
ListenerForward	String	on	Indicates whether HTTP-to-HTTPS redirection is enabled. Valid values: • **on**: enabled • **off**: disabled
MaxConnection	Integer	10	The maximum number of connections.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.
RequestTimeout	Integer	34	The timeout period of a request. Valid values: **1 to 180**. Unit: seconds. Default value: **60**. If no response is received from the backend server within the timeout period, SLB returns an HTTP 504 error to the client.
SecurityStatus	String	on	The security status. Valid values: **on** and **off**.
XForwardedFor_SLBID	String	on	Indicates whether the `SLB-ID` header is added to obtain the ID of the SLB instance.
XForwardedFor_SLBIP	String	on	Indicates whether the `SLB-IP` header is added to obtain the real IP address of the client.
XForwardedFor_proto	String	on	Indicates whether the `X-Forwarded-Proto` header is added to obtain the listener protocol of the SLB instance.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancerHTTPListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1o94dp5*********
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancerHTTPListenerAttributeResponse>
    <ForwardPort>443</ForwardPort>
    <ListenerPort>80</ListenerPort>
    <Status>stopped</Status>
    <RequestId>99439CEF-192C-4B01-A45A-2D5BD5BCDA62</RequestId>
    <ListenerForward>on</ListenerForward>
</DescribeLoadBalancerHTTPListenerAttributeResponse>
```

`JSON` format

```
{
    "ForwardPort": 443,
    "ListenerPort": 80,
    "Status": "stopped",
    "RequestId": "99439CEF-192C-4B01-A45A-2D5BD5BCDA62",
    "ListenerForward": "on"
}
```

14.1.2.5.4. HTTPS listeners

14.1.2.5.4.1. CreateLoadBalancerHTTPSListener

Creates an HTTPS listener.

Note Newly created listeners are in the Stopped state. After a listener is created, you can call the `StartLoadBalancerListener` operation to enable the listener to forward traffic.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateLoadBalancerHTTPSListener	The operation that you want to perform. Set the value to **CreateLoadBalancerHTTPSListener**.

Parameter	Type	Required	Example	Description
Bandwidth	Integer	Yes	-1	The bandwidth limit of the listener. Unit: Mbit/s. Valid values: **-1** and **1 to 5120**. • **-1**: For a pay-by-data-transfer Internet-facing Server Load Balancer (SLB) instance, you can set the value to **-1**. If you set the value to -1, the bandwidth is unlimited. • **1** to **5120**: For a pay-by-bandwidth Internet-facing SLB instance, you can specify a value as the bandwidth limit for each listener. The sum of maximum bandwidth values that you set for all listeners cannot exceed the bandwidth limit of the SLB instance.
HealthCheck	String	Yes	on	Specifies whether to enable health checks. Valid values: **on** and **off**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1o94dp5i6earr****	The ID of the SLB instance.
StickySession	String	Yes	on	Specifies whether to enable session persistence. Valid values: **on** and **off**.
BackendServerPort	Integer	No	80	The backend port that is used by the SLB instance. Valid values: **1 to 65535**. If the VServerGroupId parameter is not set, this parameter is required.
XForwardedFor	String	No	on	Specifies whether to use the `X-Forwarded-For` header to obtain the real IP address of the client. Set the value to **on**.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
StickySessionType	String	No	insert	The method that is used to handle a cookie. If you set the StickySession parameter to **on**, you must specify this parameter. Valid values: **insert** and **server**. • **insert**: inserts a cookie. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will distribute this request to the recorded backend server. • **server**:rewrites a cookie. When the SLB instance detects a user-defined cookie, it rewrites the original cookie with the user-defined cookie. The next request from the client contains the user-defined cookie, and the listener distributes the request to the recorded backend server.

Parameter	Type	Required	Example	Description
CookieTimeout	Integer	No	500	The timeout period of a cookie. Valid values: **1 to 86400**. Unit: seconds. **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **insert**, this parameter is required.
Cookie	String	No	B490B5EBF6F3CD402E515D22BCDA1598	The cookie to be configured on the backend server. The value must be 1 to 200 characters in length, and can contain only ASCII characters and digits. It cannot contain commas (,), semicolons (;), or spaces. It cannot start with a dollar sign ($). **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **server**, this parameter is required.
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. Valid values: • **$_ip**: The private IP address of the backend server. If you do not set this parameter or set the parameter to $_ip, the SLB instance uses the private IP address of each backend server as the domain name for health checks. • **domain**: The domain name must be 1 to 80 characters in length and can contain only letters, digits, periods (.),and hyphens (-). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The value must be 1 to 80 characters in length, and can contain only letters, digits, `hyphens (-), forward slashes (/), periods (.),%? number signs (#), and ampersands (&)`. The URL must not be a single forward slash (/) and it must start with a forward slash (/). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy. (from **success** to **fail**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckTimeout	Integer	No	3	The timeout period of a health check response. If a backend server does not respond within the specified timeout period, the health check fails. This parameter takes effect only when the **HealthCheck** parameter is set to **on**. Valid values: **1 to 300**. Unit: seconds. If the value of the **HealthCHeckTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HealthCHeckTimeout** parameter is invalid and the value of the **HealthCheckInterval** parameter is used as the timeout period. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckConnectPort	Integer	No	8080	The port that is used for health checks. Valid values: **1 to 65535**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1 to 50** . Unit: seconds. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckHttpCode	String	No	http_2xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Default value: **http_2xx**. Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
ServerCertificateId	String	No	idkp-123-cn-test-****	The ID of the server certificate.
VServerGroupId	String	No	rsp-cige6j5e7p****	The ID of the vServer group.
CACertificateId	String	No	139a00604ad-cn-east-hangzh****	The ID of the CA certificate. • Two-factor authentication: upload a CA certificate and a server certificate. • Single-factor authentication: upload only a server certificate.
XForwardedFor_SLBIP	String	No	on	Specifies whether to use the `SLB-IP` header to obtain the real IP address of the client. Valid values: **on** and **off**. Default value: off.

Parameter	Type	Required	Example	Description
XForwardedFor_SLBID	String	No	on	Specifies whether to use the `SLB-ID` header to obtain the ID of the SLB instance. Valid values: **on** and **off**. Default value: off.
XForwardedFor_proto	String	No	on	Specifies whether to use the `X-Forwarded-Proto` header to obtain the listener protocol of the SLB instance. Valid values: **on** and **off**. Default value: off.
Gzip	String	No	on	Specifies whether to enable gzip compression to compress specific types of files. Valid values: **on** and **off**. Default value: off.
IdleTimeout	Integer	No	12	The timeout period of an idle connection. Valid values: **1 to 60**. Default value: **15**. Unit: seconds. If no request is received during the specified timeout period, the SLB instance closes the connection. When another request is received, the SLB instance establishes a new connection.
RequestTimeout	Integer	No	23	The timeout period of a request. Valid values: **1 to 180**. Default value: **60**. Unit: seconds. If no response is received from the backend server during the timeout period, SLB sends an HTTP 504 error code to the client.
				You can specify the TLSCipherPolicy parameter only for a high-performance SLB instance. Each security policy includes TLS protocol versions and cipher suites available for HTTPS. The following security policies are supported. For more information about the differences, see Differences in TLS security policies.

Parameter	Type	Required	Example	Description
TLSCipherPolicy	String	No	tls_cipher_policy_1_1	• **tls_cipher_policy_1_0**: ◦ Supported TLS versions: TLSv1.0, TLSv1.1, and TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_1**: ◦ Supported TLS versions: TLSv1.1 and TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2** ◦ Supported TLS version: TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2_strict** ◦ Supported TLS version: TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, ECDHE-RSA-AES128-SHA, and ECDHE-RSA-AES256-SHA.

Parameter	Type	Required	Example	Description
Description	String	No	CreateListeners	The description of the listener. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_).

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateLoadBalancerHTTPSListener
&Bandwidth=-1
&HealthCheck=on
&ListenerPort=80
&LoadBalancerId=lb-bp1o94dp5i6earr*****
&StickySession=on
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateLoadBalancerHTTPSListenerResponse>
   <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</CreateLoadBalancerHTTPSListenerResponse>
```

`JSON` format

```
{"RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
  }
```

14.1.2.5.4.2. SetLoadBalancerHTTPSListenerAttribute

Modifies the configurations of an HTTPS listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetLoadBalancerHTTPSListenerAttribute	The operation that you want to perform. Set the value to **SetLoadBalancerHTTPSListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-sjhfdji****	The ID of the SLB instance.
Bandwidth	Integer	No	-1	Specify the bandwidth limit of the listener. Valid values: **1 to 5120** and **-1**. • **-1**: If you set the value to -1, the bandwidth is unlimited. • **1 to 5120**: If you set a value from 1 to 5120, the value that you specify equals the bandwidth limit of the listener. The sum of bandwidth limit values that you specify for all listeners of the SLB instance cannot exceed the bandwidth limit of the SLB instance.
XForwardedFor	String	No	on	Specifies whether to use the X-Forwarded-For header to obtain the real IP address of the client. Valid values: **on** and **off**.

Parameter	Type	Required	Example	Description
Scheduler	String	No	wrr	The scheduling algorithm. Valid values: • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
StickySession	String	No	on	Specifies whether to enable session persistence. Valid values: **on** and **off**.
StickySessionType	String	No	insert	The method that is used to handle a cookie. Valid values: • **insert**: inserts a cookie. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will forward this request to the recorded backend server. • **server**: rewrites the original cookie. When SLB detects a user-defined cookie, it overwrites the original cookie with the user-defined cookie. The next request from the client will contain the user-defined cookie, and the listener will distribute the request to the recorded backend server. **Note** If you set the **StickySession** parameter to **on**, this parameter is required.

Parameter	Type	Required	Example	Description
CookieTimeout	Integer	No	500	The timeout period of a cookie. Valid values: **1 to 86400**. Unit: seconds. **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **insert**, this parameter is required.
Cookie	String	No	B490B5EBF6F3CD402E515D22BCDA1598	The cookie that is configured on the backend server. The value must be 1 to 200 characters in length, and can contain only ASCII characters and digits. It cannot contain commas (,), semicolons (;), or spaces. It cannot start with a dollar sign ($). **Note** If you set the **StickySession** parameter to **on** and the **StickySessionType** parameter to **server**, this parameter is required.
HealthCheck	String	No	on	Specifies whether to enable health checks. Valid values: **on** and **off**.

Parameter	Type	Required	Example	Description
HealthCheckDomain	String	No	172.XX.XX.6	The domain name that is used for health checks. Valid values: • **$_ip**: The private IP address of the backend server. If the $_ip parameter is set or the HealthCheckDomain parameter is not set, SLB uses the private IP addresses of backend servers as the domain names for health checks. • **domain**: The domain name must be 1 to 80 characters in length, and can contain only letters, digits, periods (.),and hyphens (-). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckURI	String	No	/test/index.html	The URL that is used for health checks. The URL must be 1 to 80 characters in length and can contain only letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), question marks (?), number signs (#), and ampersands (&). The URL must not be a single forward slash (/). However, it must start with a forward slash (/). **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthyThreshold	Integer	No	4	The number of health checks that an unhealthy backend server must consecutively pass before it can be declared healthy (from **fail** to **success**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
UnhealthyThreshold	Integer	No	4	The number of health checks that a healthy backend server must consecutively fail before it can be declared unhealthy (from **success** to **fail**). Valid values: **2 to 10**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckTimeout	Integer	No	3	The timeout period of a health check response. If a backend server does not respond within the specified timeout period, the backend server is declared unhealthy. Valid values: **1 to 300**. Unit: seconds. **Note** • If the value of the **HealthCheckTimeout** parameter is smaller than that of the **HealthCheckInterval** parameter, the value of the **HealthCheckTimeout** parameter is ignored and the value of the **HealthCheckInterval** parameter is used as the timeout period. • This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckInterval	Integer	No	5	The interval between two consecutive health checks. Valid values: **1 to 50**. Unit: seconds. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
HealthCheckConnectPort	Integer	No	8080	The port that is used for health checks. Valid values: **1 to 65535**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.

Parameter	Type	Required	Example	Description
HealthCheckHttpCode	String	No	http_2xx,http_3xx	The HTTP status code that indicates a successful health check. Separate multiple HTTP status codes with commas (,). Valid values: **http_2xx**, **http_3xx**, **http_4xx**, and **http_5xx**. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
ServerCertificateId	String	No	idkp-123-cn-te****	The ID of the server certificate.
CACertificateId	String	No	139a00604ad-cn-east-****	The ID of the CA certificate. • If both the CA certificate and the server certificate are uploaded, two-factor authentication is used. • If you upload only the server certificate, single-factor authentication is used.
VServerGroup	String	No	on	Specifies whether to use a vServer group. Valid values: **on** and **off**.
VServerGroupId	String	No	rsp-cige6j****	The ID of the vServer group.
Tags	String	No	loadbalancerhttps****	The tags.
XForwardedFor_SLBIP	String	No	on	Specifies whether to use the `SLB-IP` header to obtain the real IP address of the client. Valid values: **on** and **off**.
XForwardedFor_SLBID	String	No	on	Specifies whether to use the `SLB-ID` header to obtain the ID of the SLB instance. Valid values: **on** and **off**.

Parameter	Type	Required	Example	Description
XForwardedFor_proto	String	No	on	Specifies whether to use the `X-Forwarded-Proto` header to obtain the listener protocol of the SLB instance. Valid values: **on** and **off**.
Gzip	String	No	on	Specifies whether to enable gzip compression to compress specific types of files. Valid values: **on** and **off**.
IdleTimeout	Integer	No	23	The timeout period of an idle connection. Unit: seconds. Valid values: **1 to 60**. Default value: **15**. If no request is received during the specified timeout period, the SLB instance closes the connection. When another request is received, the SLB instance establishes a new connection.
RequestTimeout	Integer	No	223	The timeout period of a request. Unit: seconds. Valid values: **1 to 180**. Default value: **60**. If no response is received from the backend server during the specified timeout period, SLB sends an HTTP 504 error code to the client.
				You can specify the TLSCipherPolicy parameter only for a high-performance SLB instance. Each security policy includes TLS protocol versions and cipher suites that are available for HTTPS. You can select a security policy based on your requirements. The following security policies are supported: • **tls_cipher_policy_1_0**: ◦ Supported TLS versions: TLSv1.0, TLSv1.1, and TLSv1.2.

Parameter	Type	Required	Example	Description
TLSCipherPolicy	String	No	tls_cipher_policy_1_2	◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_1**: ◦ Supported TLS versions: TLSv1.1 and TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2** ◦ Supported TLS version: TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2_strict** ◦ Supported TLS version: TLSv1.2. ◦ Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA.
Description	String	No	ListenerDescription	The description of the listener. The description must be 2 to 256 characters in length. It can contain only characters in the following string: `^([^\x00-\xff]|[\w.,;/@-]){2,256}$`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetLoadBalancerHTTPSListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-sjhfdji****************
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetLoadBalancerHTTPSListenerAttributeResponse>
    <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</SetLoadBalancerHTTPSListenerAttributeResponse>
```

`JSON` format

```
{
 "RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
}
```

14.1.2.5.4.3.

DescribeLoadBalancerHTTPSListenerAttribute

Queries the configurations of an HTTPS listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeLoadBalancerHTTPSListenerAttribute	The operation that you want to perform. Set the value to **DescribeLoadBalancerHTTPSListenerAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.

Parameter	Type	Required	Example	Description
LoadBalancerId	String	Yes	lb-bp1mxu5r8lau****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
ListenerPort	Integer	80	The frontend port that is used by the SLB instance.
BackendServerPort	Integer	80	The backend port that is used by the SLB instance.
Bandwidth	Integer	-1	The bandwidth limit of the listener.
Status	String	stopped	The state of the listener. Valid values: **running** and **stopped**.
XForwardedFor	String	on	Indicates whether the X-Forwarded-For header is used to obtain the real IP address of the client. Valid values: **on** and **off**.
Scheduler	String	wrr	The scheduling algorithm. Valid values: **wrr**, **wlc**, and **rr**. • **wrr** (default): Backend servers that have higher weights receive more requests than backend servers that have lower weights. • **wlc**: Requests are distributed based on the weights and number of connections to backend servers. If two backend servers have the same weight, the backend server that has fewer connections receives more requests. • **rr**: Requests are distributed to backend servers in sequence.
StickySession	String	on	Indicates whether session persistence is enabled. Valid values: **on** and **off**.

Parameter	Type	Example	Description
StickySessionType	String	insert	The method that is used to handle a cookie. If you set the StickySession parameter to **on**, this parameter is required. Valid values: **insert** and **server**. • **insert**: inserts a cookie into the response. SLB inserts a cookie (SERVERID) into the first HTTP or HTTPS response that is sent to a client. The next request from the client will contain this cookie, and the listener will forward this request to the recorded backend server. • **server**: rewrites the original cookie. When SLB detects a user-defined cookie, it overwrites the original cookie with the user-defined cookie. The next request from the client will contain the user-defined cookie, and the listener will distribute the request to the recorded backend server. **Note** If you set the **StickySession** parameter to **on**, this parameter is required.
CookieTimeout	Integer	500	The timeout period of a cookie.
Cookie	String	B490B5EBF6F3CD402E515D22BCDA1598	The cookie configured on the backend server.
HealthCheck	String	on	Indicates whether health checks are enabled. Valid values: **on** and **off**.
HealthCheckDomain	String	www.test.com	The domain name that is used for health checks.

Parameter	Type	Example	Description
HealthCheckURI	String	/test/index.html	The URL that is used for health checks. The URL must be 1 to 80 characters in length and can contain only letters, digits, hyphens (-), forward slashes (/), periods (.), percent signs (%), question marks (?), number signs (#), and ampersands (&). The URL must start with a forward slash (/) but cannot contain only a forward slash (/).
HealthyThreshold	Integer	4	The healthy threshold.
UnhealthyThreshold	Integer	4	The unhealthy threshold.
HealthCheckTimeout	Integer	3	The timeout period of a health check response. Unit: seconds.
HealthCheckInterval	Integer	5	The time interval between two consecutive health checks. Unit: seconds. Valid values: **1 to 50**.
HealthCheckHttpCode	String	http_2xx	The HTTP status code that indicates a successful health check. Multiple status codes are separated with commas (,). Valid values: **http_2xx** (default), **http_3xx**, **http_4xx**, and **http_5xx**.
HealthCheckConnectPort	Integer	8080	The port that is used for health checks. **Note** This parameter takes effect only when the **HealthCheck** parameter is set to **on**.
ServerCertificateId	String	idkp-123-cn-test-****	The ID of the server certificate.
CACertificateId	String	idkp-234-cn-test-****	The ID of the CA certificate.
VServerGroupId	String	rsp-cige6j5e****	The ID of the associated vServer group.

Parameter	Type	Example	Description
Gzip	String	on	Indicates whether gzip compression is enabled. Valid values: **on** and **off**.
Description	String	ListenerDescription	The description of the listener. The description must be 2 to 256 characters in length. It can contain only Chinese characters and characters in the following string: /^([^\x00-\xff]|[\w.,;/@-]){2,256}$/.
IdleTimeout	Integer	23	The timeout period of an idle connection. Unit: seconds. Valid values: 1 to 60. Default value: 15. If no request is received during the specified timeout period, SLB closes the connection. When another request is received, SLB establishes a new connection.
MaxConnection	Integer	10	
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.
RequestTimeout	Integer	43	The timeout period of a request. Unit: seconds. Valid values: 1 to 180. Default value: 60. If the backend server does not respond within the specified timeout period, SLB returns the HTTP 504 error code to the client.
SecurityStatus	String	on	The security status. Valid values: **on** and **off**.
			The security policy. You can specify the TLSCipherPolicy parameter only for a high-performance SLB instance. Each security policy includes different TLS protocol versions and cipher suites for HTTPS.

Parameter	Type	Example	Description
TLSCipherPolicy	String	tls_cipher_policy_1_0	The following security policies are supported. For more information about the differences, see Differences in TLS security policies. You can specify a security policy based on your requirements. Valid values: • **tls_cipher_policy_1_0**: Supported TLS versions: TLSv1.0, TLSv1.1, and TLSv1.2. Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_1**: Supported TLS versions: TLSv1.1 and TLSv1.2. Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2** Supported TLS version: TLSv1.2. Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, AES128-GCM-SHA256, AES256-GCM-SHA384, AES128-SHA256, AES256-SHA256, ECDHE-RSA-AES128-SHA, ECDHE-RSA-AES256-SHA, AES128-SHA, AES256-SHA, and DES-CBC3-SHA. • **tls_cipher_policy_1_2_strict** Supported TLS version: TLSv1.2. Supported cipher suites: ECDHE-RSA-AES128-GCM-SHA256, ECDHE-RSA-AES256-GCM-SHA384, ECDHE-RSA-AES128-SHA256, ECDHE-RSA-AES256-SHA384, ECDHE-RSA-AES128-SHA, and ECDHE-RSA-AES256-SHA.

Parameter	Type	Example	Description
XForwardedFor_SLBID	String	on	Indicates whether the `SLB-ID` header is used to obtain the ID of the SLB instance. Valid values: **on** and **off**.
XForwardedFor_SLBIP	String	on	Indicates whether the `SLB-IP` header is used to obtain the real IP address of the client. Valid values: **on** and **off**.
XForwardedFor_proto	String	on	Indicates whether the `X-Forwarded-Proto` header is used to obtain the listener protocol of the SLB instance. Valid values: **on** and **off**.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeLoadBalancerHTTPSListenerAttribute
&ListenerPort=80
&LoadBalancerId=lb-bp1mxu5r8lau*******
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeLoadBalancerHTTPSListenerAttributeResponse>
   <RequestId>11F52428-64ED-40F7-98C2-DBB6D0BB0AD7</RequestId>
      <HealthCheckHttpCode>http_2xx,http_3xx</HealthCheckHttpCode>
      <HealthCheckTimeout>5</HealthCheckTimeout>
      <ServerCertificateId>1231579xxxxxxxx_15dbf6ff26f_1991415478_2054196746</ServerCertificateId>
      <XForwardedFor_SLBID>off</XForwardedFor_SLBID>
      <Gzip>on</Gzip>
      <HealthyThreshold>3</HealthyThreshold>
      <Scheduler>wrr</Scheduler>
      <StickySession>off</StickySession>
      <UnhealthyThreshold>3</UnhealthyThreshold>
      <XForwardedFor_SLBIP>off</XForwardedFor_SLBIP>
      <XForwardedFor_proto>off</XForwardedFor_proto>
      <Bandwidth>-1</Bandwidth>
      <HealthCheckURI>/</HealthCheckURI>
      <VServerGroupId>rsp-0xiju72x******</VServerGroupId>
      <HealthCheck>on</HealthCheck>
      <ListenerPort>443</ListenerPort>
      <Status>running</Status>
      <XForwardedFor>on</XForwardedFor>
      <HealthCheckDomain></HealthCheckDomain>
      <HealthCheckInterval>2</HealthCheckInterval>
      <BackendServerPort>443</BackendServerPort>
</DescribeLoadBalancerHTTPSListenerAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "11F52428-64ED-40F7-98C2-DBB6D0BB0AD7",
    "HealthCheckHttpCode": "http_2xx,http_3xx",
    "HealthCheckTimeout": 5,
    "ServerCertificateId": "1231579xxxxxxxx_15dbf6ff26f_1991415478_2054196746",
    "XForwardedFor_SLBID": "off",
    "Gzip": "on",
    "HealthyThreshold": 3,
    "Scheduler": "wrr",
    "StickySession": "off",
    "UnhealthyThreshold": 3,
    "XForwardedFor_SLBIP": "off",
    "XForwardedFor_proto": "off",
    "Bandwidth": -1,
    "HealthCheckURI": "/",
    "VServerGroupId": "rsp-0xiju72x******",
    "HealthCheck": "on",
    "ListenerPort": 443,
    "Status": "running",
    "XForwardedFor": "on",
    "HealthCheckDomain": "",
    "HealthCheckInterval": 2,
    "BackendServerPort": 443
}
```

14.1.2.5.4.4. DescribeHealthStatus

Queries the health status of backend servers.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeHealthStatus	The operation that you want to perform. Set the value to **DescribeHealthStatus**.
LoadBalancerId	String	Yes	lb-bp1qjwo61pqz3ah****	The ID of the Server Load Balancer (SLB) instance.
ListenerPort	Integer	No	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**. **Note** If you do not specify this parameter, the health status of all ports is returned.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the SLB instance is deployed.

Response parameters

Parameter	Type	Example	Description
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	i-bp1h5u3fv54ytf****	The ID of the Elastic Compute Service (ECS) instance or elastic network interface (ENI).

Parameter	Type	Example	Description
ServerHealthStatus	String	abnormal	The health status of the backend server: • **normal**: The backend server is healthy. • **abnormal**: The backend server is unhealthy. • **unavailable**: The health check is not completed.
ListenerPort	Integer	80	The frontend port that is used by the SLB instance.
port	Integer	80	
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeHealthStatus
&LoadBalancerId=lb-bp1qjwo61pqz3ah****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeHealthStatusResponse>
  <RequestId>E69BA4CE-2B55-45EC-94CA-E47B16759459</RequestId>
  <BackendServers>
        <BackendServer>
              <ListenerPort>80</ListenerPort>
              <ServerId>i-bp1h5u3fv54ytf0******</ServerId>
              <Port>80</Port>
              <ServerIp>192.168.0.**</ServerIp>
              <ServerHealthStatus>abnormal</ServerHealthStatus>
              <Protocol>http</Protocol>
        </BackendServer>
        <BackendServer>
              <ListenerPort>8080</ListenerPort>
              <ServerId>i-bp1h5u3fv54ytf0******</ServerId>
              <Port>80</Port>
              <ServerIp>192.168.0.**</ServerIp>
              <ServerHealthStatus>abnormal</ServerHealthStatus>
              <Protocol>tcp</Protocol>
        </BackendServer>
  </BackendServers>
</DescribeHealthStatusResponse>
```

`JSON` format

```
{
    "RequestId": "E69BA4CE-2B55-45EC-94CA-E47B16759459",
    "BackendServers": {
        "BackendServer": [
            {
                "ListenerPort": 80,
                "ServerId": "i-bp1h5u3fv54ytf*****",
                "Port": 80,
                "ServerIp": "192.168.**.**",
                "ServerHealthStatus": "abnormal",
                "Protocol": "http"
            },
            {
                "ListenerPort": 8080,
                "ServerId": "i-bp1h5u3fv54ytf0******",
                "Port": 80,
                "ServerIp": "192.168.**.**",
                "ServerHealthStatus": "abnormal",
                "Protocol": "tcp"
            }
        ]
    }
}
```

14.1.2.5.5. Access control

14.1.2.5.5.1. SetListenerAccessControlStatus

Enables or disables the whitelist of a specified listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetListenerAccessControlStatus	The operation that you want to perform. Set the value to **SetListenerAccessControlStatus**.
AccessControlStatus	String	Yes	open_white_list	Specifies whether to enable the whitelist. Valid values: • **open_white_list**: enables the whitelist. • **close**: disables the whitelist. **Note** After the whitelist is enabled, if no IP address is added to the whitelist, the Server Load Balancer (SLB) instance does not distribute network traffic.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.
access_key_id	String	No	acc-hp34s2h0xx1ht4nwo****	The AccessKey ID.
Tags	String	No	{"tagKey":"Key1","tagValue":"Value1"}	The key and value of the tag.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetListenerAccessControlStatus
&AccessControlStatus=open_white_list
&ListenerPort=80
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetListenerAccessControlStatusResponse>
    <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</SetListenerAccessControlStatusResponse>
```

`JSON` format

```
{"RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"}
```

14.1.2.5.5.2. DescribeListenerAccessControlAttribute

Queries the whitelist configurations of a listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeListenerAccessControlAttribute	The operation that you want to perform. Set the value to **DescribeListenerAccessControlAttribute**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.

Parameter	Type	Required	Example	Description
LoadBalancerId	String	Yes	lb-8vb86hxixo8******6jaz	The ID of the SLB instance.
Tags	String	No	listeneraccesscontrolslb****	The tags.

Response parameters

Parameter	Type	Example	Description
AccessControlStatus	String	open_white_list	Indicates whether the whitelist is enabled. Valid values: • **open_white_list**: the whitelist is enabled. • **close**: the whitelist is disabled.
SourceItems	String	192.168.0.1	The IP addresses or CIDR blocks that are added to the whitelist.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeListenerAccessControlAttribute
&ListenerPort=80
&LoadBalancerId=lb-8vb86hxixo8*******6jaz
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeListenerAccessControlAttributeResponse>
   <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
   <AccessControlStatus>open_white_list</AccessControlStatus>
   <SourceItems>192.168.0.1</SourceItems>
</DescribeListenerAccessControlAttributeResponse>
```

`JSON` format

```
{"AccessControlStatus":"open_white_list",
"RequestId":"365F4154-92F6-4AE4-92F8-7FF34B540710",
"SourceItems":"192.168.0.1"}
```

14.1.2.5.5.3. AddListenerWhiteListItem

Adds IP addresses to the whitelist of a listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddListenerWhiteListItem	The operation that you want to perform. Set the value to **AddListenerWhiteListItem**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	139a00604ad-cn-east-hangzhou-01	The ID of the SLB instance.
SourceItems	String	Yes	1.XX.XX.1,1.XX.XX.0/21	The IP addresses or CIDR blocks that you want to add to the whitelist. This parameter takes effect only when **AccessControlStatus** of the listener is set to **open_white_list**. Separate multiple IP addresses or CIDR blocks with commas (,). You cannot enter 0.0.0.0 or 0.0.0.0/0. You can call the `SetListenerAccessControlStatus` operation to set the value of the **AccessControlStatus** parameter to **close**. This indicates that access control is disabled.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddListenerWhiteListItem
&ListenerPort=80
&LoadBalancerId=139a00604ad-cn-east-hangzhou-01
&SourceItems=1.XX.XX.1,XX.XX.1.0/21
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddListenerWhiteListItemResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</AddListenerWhiteListItemResponse>
```

`JSON` format

```
{
    "AddListenerWhiteListItemResponse": {
        "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
    }
}
```

14.1.2.5.5.4. RemoveListenerWhiteListItem

Removes IP addresses from the whitelist of a listener.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveListenerWhiteListItem	The operation that you want to perform. Set the value to **RemoveListenerWhiteListItem**.
ListenerPort	Integer	Yes	80	The listener port. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the Server Load Balancer (SLB) instance.

Parameter	Type	Required	Example	Description
SourceItems	String	Yes	192.168.0.1/24	The IP addresses or CIDR blocks to be removed. Separate multiple IP addresses or CIDR blocks with commas (,). **Note** If all IP addresses are removed from the whitelist, the listener does not forward requests.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveListenerWhiteListItem
&ListenerPort=80
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&SourceItems=192.168.0.1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RemoveListenerWhiteListItemResponse>
    <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</RemoveListenerWhiteListItemResponse>
```

`JSON` format

```
{"RequestId":" CEF72CEB-54B6-4AE8-B225-F876FF7BA984"}
```

14.1.2.5.6. DeleteLoadBalancerListener

Deletes a listener.

Note You can delete only listeners that are in the **stopped** or **running** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteLoadBalancerListener	The operation that you want to perform. Set the value to **DeleteLoadBalancerListener**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the Server Load Balancer (SLB) instance. Valid values: **1 to 65535**.
LoadBalancerId	String	Yes	lb-bp13jaf5qli5xm****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteLoadBalancerListener
&ListenerPort=80
&LoadBalancerId=lb-bp13jaf5qli5xm****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteLoadBalancerListenerResponse>
     <RequestId>791D8B68-AE0F-4174-AF54-088C8B3C5D54</RequestId>
  </DeleteLoadBalancerListenerResponse>
```

`JSON` format

```
{
    "RequestId": "791D8B68-AE0F-4174-AF54-088C8B3C5D54"
}
```

14.1.2.5.7. StopLoadBalancerListener

Disables a listener.

When you call this operation, take note of the following items:

- If the operation is successful, the listener switches to the Stopped state.
- You cannot perform the operation when the Server Load Balancer (SLB) instance to which the listener belongs is in the Locked state.

> **Note** After a listener is disabled, it stops forwarding requests to the associated backend servers. This may cause service interruptions. Proceed with caution.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	StopLoadBalancerListener	The operation that you want to perform. Set the value to **StopLoadBalancerListener**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1** to **65535**.
LoadBalancerId	String	Yes	lb-bp13jaf5qli5xmgl****	The ID of the SLB instance.
Tags	String	No	null	The key and value of the tag.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=StopLoadBalancerListener
&ListenerPort=80
&LoadBalancerId=lb-bp13jaf5qli5xmgl****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<StopLoadBalancerListenerResponse>
     <RequestId>21D2B318-650E-4B0B-A3B5-693D462247B3</RequestId>
  </StopLoadBalancerListenerResponse>
```

`JSON` format

```
{
    "RequestId": "21D2B318-650E-4B0B-A3B5-693D462247B3"
}
```

14.1.2.5.8. StartLoadBalancerListener

Enables a listener.

When you call this operation, take note of the following items:

- You can call the operation only when the listener is in the Stopped state.
- If the operation is successful, the state of the listener changes to Starting.
- You cannot call the operation when the Server Load Balancer (SLB) instance to which the listener belongs is in the Locked state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	StartLoadBalancerListener	The operation that you want to perform. Set the value to **StartLoadBalancerListener**.
ListenerPort	Integer	Yes	80	The frontend port that is used by the SLB instance. Valid values: **1** to **65535**.
LoadBalancerId	String	Yes	lb-bp13jaf5qli5****	The ID of the SLB instance.
Tags	String	No	{"tagKey":"Key1", "tagValue":"Value1"}	The key and value of the tag.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=StartLoadBalancerListener
&ListenerPort=80
&LoadBalancerId=lb-bp13jaf5qli5****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<StartLoadBalancerListenerResponse>
     <RequestId>CC000321-00F2-49B8-9BCA-60D822414960</RequestId>
  </StartLoadBalancerListenerResponse>
```

`JSON` format

```
{
    "RequestId": "CC000321-00F2-49B8-9BCA-60D822414960"
}
```

14.1.2.6. Server certificates

14.1.2.6.1. UploadServerCertificate

Uploads a server certificate.

You can upload only one server certificate and its private key in each request.

The request is successful only when the server certificate and its private key are both uploaded. If the server certificate or its private key is not uploaded, the request fails. After a server certificate and its private key are uploaded, the fingerprints of all server certificates that belong to your account are returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UploadServerCertificate	The operation that you want to perform. Set the value to **UploadServerCertificate**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the server certificate is created. You can call the `DescribeRegions` operation to query region IDs.
AliCloudCertificateId	String	No	730912673******_15d97e7709a_71445759hr_7892********	The ID of the server certificate that is provided by Apsara Stack SSL Certificates Service. This parameter is required if you use a server certificate that is provided by Apsara Stack SSL Certificates Service.
AliCloudCertificateName	String	No	testcertkey	The name of the server certificate that is provided by Apsara Stack SSL Certificates Service.
ServerCertificate	String	No	test	The public key certificate that you want to upload. **Note** This parameter is required if you use a server certificate that is provided by a third party.
PrivateKey	String	No	wmsa****	The private key that you want to upload. **Note** This parameter is required if you use a server certificate that provided by a third party.
ServerCertificateName	String	No	mycert01	The name of the server certificate that you want to upload. The name must be 1 to 80 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter.
Tags	String	No	ServerCertificate*****	The tag that you want to add to the server certificate.

Parameter	Type	Required	Example	Description
StandardType	String	No	ServerCertificate	The type of the server certificate.

Response parameters

Parameter	Type	Example	Description
ServerCertificateId	String	xxxxidkp-123-cn-test****	The ID of the server certificate.
ServerCertificateName	String	mycert01	The name of the server certificate.
Fingerprint	String	01:DF:AB:**	The fingerprint of the server certificate.
AliCloudCertificateId	String	730912xxxxx_15d97e7709a_71445759hr_7****	The ID of the server certificate if the server certificate is provided by Apsara Stack SSL Certificates Service.
AliCloudCertificateName	String	testcert****	The name of the server certificate if the server certificate is provided by Apsara Stack SSL Certificates Service.
IsAliCloudCertificate	Integer	0	Indicates whether the server certificate is provided by Apsara Stack SSL Certificates Service. Valid values: • 0: The server certificate is provided by a third-party CA. • 1: The server certificate is provided by Apsara Stack SSL Certificates Service.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the server certificate is created.
RegionIdAlias	String	hangzhou	The name of the region where the server certificate is created.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UploadServerCertificate
&RegionId=cn-east-hangzhou-01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UploadServerCertificateResponse>
      <RegionIdAlias>cn-east-hangzhou-01</RegionIdAlias>
      <Fingerprint>01:DF:AB:**</Fingerprint>
      <AliCloudCertificateName>testcert***</AliCloudCertificateName>
      <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
      <IsAliCloudCertificate>0</IsAliCloudCertificate>
      <ServerCertificateId>xxxxidkp-123-cn-test******</ServerCertificateId>
      <ServerCertificateName>mycert01</ServerCertificateName>
      <RegionId>cn-hangzhou</RegionId>
      <AliCloudCertificateId>730912xxxxx_15d97e7709a_71445759hr_7*******</AliCloudCertificateId>
</UploadServerCertificateResponse>
```

`JSON` format

```
{
    "UploadServerCertificateResponse": {
        "RegionIdAlias": "cn-east-hangzhou-01",
        "Fingerprint": "01:DF:AB:**",
        "AliCloudCertificateName": "testcert***",
        "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
        "IsAliCloudCertificate": 0,
        "ServerCertificateId": "xxxxidkp-123-cn-test******",
        "ServerCertificateName": "mycert01",
        "RegionId": "cn-hangzhou",
        "AliCloudCertificateId": "730912xxxxx_15d97e7709a_71445759hr_7*******"
    }
}
```

14.1.2.6.2. DeleteServerCertificate

Deletes a server certificate.

> **Note** You cannot delete a server certificate that is in use.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteServerCertificate	The operation that you want to perform. Set the value to **DeleteServerCertificate**.
ServerCertificateId	String	Yes	123157****_166f8204689_1714763408_7099****	The ID of the server certificate.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed. You can call the `DescribeRegions` operation to query region IDs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteServerCertificate
&ServerCertificateId=123157****_166f8204689_1714763408_7099****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteServerCertificateResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteServerCertificateResponse>
```

`JSON` format

```
{
    "DeleteServerCertificateResponse": {
        "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FF7BA984"
    }
}
```

14.1.2.6.3. DescribeServerCertificates

Queries server certificates in a specified region.

Note For security reasons, only fingerprints and names of the server certificates are returned. The content of the server certificates and private keys is not returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeServerCertificates	The operation that you want to perform. Set the value to **DescribeServerCertificates**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed. You can call the `DescribeRegions` operation to query region IDs.
ServerCertificateId	String	No	12315790xxxxxxx_166f8204689_1714763408_709*****	The ID of the server certificate.

Response parameters

Parameter	Type	Example	Description
ServerCertificates	Array of ServerCertificate		The list of server certificates.
ServerCertificate			
ServerCertificateId	String	123157xxxxxxxx_166f8204689_1714763408_709981430-cn-east-hangz******	The ID of the server certificate.
ServerCertificateName	String	slb	The name of the server certificate.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the server certificate is created.

Parameter	Type	Example	Description
Fingerprint	String	68:08:1a:f8:2c:97:69:a3:a1:e6:16:41:4b:ca:4f:5d:ee:a5:ef:0d	The fingerprint of the server certificate.
AliCloudCertificateId	String	7309xxxxxxxx_15d97e7709a_71445759hr_78928*****	The ID of the server certificate from Apsara Stack SSL Certificates Service.
AliCloudCertificateName	String	testcertkey	The name of the server certificate from Apsara Stack SSL Certificates Service.
IsAliCloudCertificate	Integer	0	Indicates whether the server certificate is from Apsara Stack SSL Certificates Service. Valid values: • **1**: yes • **0**: no
RegionIdAlias	String	cn-qingdao-env17-d01	The name of the region where the SLB instance is deployed.
StandardType	String	ServerCertificate	The type of the server certificate.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeServerCertificates
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeServerCertificatesResponse>
      <RequestId>9FFF450B-CC09-4FFB-900F-E347EB7AA2CC</RequestId>
      <ServerCertificates>
            <ServerCertificate>
                  <CreateTimeStamp>1541761156000</CreateTimeStamp>
                  <CommonName>*.example1.com</CommonName>
                  <RegionIdAlias>cn-hangzhou</RegionIdAlias>
                  <ResourceGroupId>rg-acfmxazb4ph6aiy</ResourceGroupId>
                  <Fingerprint>68:08:1a:f8:2c:97:69:a3:a1:e6:16:41:4b:ca:4f:5d:ee:a5:ef:0d<
/Fingerprint>
                  <ServerCertificateId>1231579xxxxxx_166f8204689_1714763408_709981430</Serv
erCertificateId>
                  <ExpireTimeStamp>1558161264000</ExpireTimeStamp>
                  <AliCloudCertificateId>1501739</AliCloudCertificateId>
                  <ExpireTime>2019-05-18T06:34:24Z</ExpireTime>
                  <RegionId>cn-hangzhou</RegionId>
                  <CreateTime>2018-11-09T10:59:16Z</CreateTime>
                  <ServerCertificateName>*.example1.com</ServerCertificateName>
                  <IsAliCloudCertificate>1</IsAliCloudCertificate>
                  <AliCloudCertificateName>slb</AliCloudCertificateName>
            </ServerCertificate>
            <ServerCertificate>
                  <CreateTimeStamp>1481623069000</CreateTimeStamp>
                  <RegionIdAlias>cn-hangzhou</RegionIdAlias>
                  <ResourceGroupId>rg-acfmxazb4ph6aiy</ResourceGroupId>
                  <Fingerprint>cd:90:1b:7b:49:4d:1d:90:f6:01:de:9a:81:7d:31:a7:38:1d:84:8d<
/Fingerprint>
                  <ServerCertificateId>1231579085xxxx_158f79de306</ServerCertificateId>
                  <ExpireTimeStamp>1732169065000</ExpireTimeStamp>
                  <AliCloudCertificateId>0</AliCloudCertificateId>
                  <ExpireTime>2024-11-21T06:04:25Z</ExpireTime>
                  <RegionId>cn-hangzhou</RegionId>
                  <CreateTime>2016-12-13T09:57:49Z</CreateTime>
                  <ServerCertificateName>test_certificate</ServerCertificateName>
                  <IsAliCloudCertificate>0</IsAliCloudCertificate>
                  <AliCloudCertificateName></AliCloudCertificateName>
            </ServerCertificate>
      </ServerCertificates>
</DescribeServerCertificatesResponse>
```

`JSON` format

```
{
    "DescribeServerCertificatesResponse": {
        "RequestId": "9FFF450B-CC09-4FFB-900F-E347EB7AA2CC",
        "ServerCertificates": {
            "ServerCertificate": [
                {
                    "CreateTimeStamp": 1541761156000,
                    "CommonName": "*.example1.com",
                    "RegionIdAlias": "cn-hangzhou",
                    "ResourceGroupId": "rg-acfmxazb4ph6aiy",
                    "Fingerprint": "68:08:1a:f8:2c:97:69:a3:a1:e6:16:41:4b:ca:4f:5d:ee:a5:e
f:0d",
                    "ServerCertificateId": "1231579xxxxxx_166f8204689_1714763408_709981430"
,
                    "ExpireTimeStamp": 1558161264000,
                    "AliCloudCertificateId": 1501739,
                    "ExpireTime": "2019-05-18T06:34:24Z",
                    "RegionId": "cn-hangzhou",
                    "CreateTime": "2018-11-09T10:59:16Z",
                    "ServerCertificateName": "*.example1.com",
                    "IsAliCloudCertificate": 1,
                    "AliCloudCertificateName": "slb"
                },
                {
                    "CreateTimeStamp": 1481623069000,
                    "RegionIdAlias": "cn-hangzhou",
                    "ResourceGroupId": "rg-acfmxazb4ph6aiy",
                    "Fingerprint": "cd:90:1b:7b:49:4d:1d:90:f6:01:de:9a:81:7d:31:a7:38:1d:8
4:8d",
                    "ServerCertificateId": "1231579085xxxx_158f79de306",
                    "ExpireTimeStamp": 1732169065000,
                    "AliCloudCertificateId": 0,
                    "ExpireTime": "2024-11-21T06:04:25Z",
                    "RegionId": "cn-hangzhou",
                    "CreateTime": "2016-12-13T09:57:49Z",
                    "ServerCertificateName": "test_certificate",
                    "IsAliCloudCertificate": 0,
                    "AliCloudCertificateName": ""
                }
            ]
        }
    }
}
```


14.1.2.6.4. SetServerCertificateName

Sets the name of a server certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetServerCertificateName	The operation that you want to perform. Set the value to **SetServerCertificateName**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed. You can call the `DescribeRegions` operation to query region IDs.
ServerCertificateId	String	Yes	139a****-cn-qingdao-env17-d01	The ID of the server certificate.
ServerCertificateName	String	Yes	slb-servercertificate-cn-east-hangzhou****	The name of the server certificate. The name must be 1 to 80 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FE7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetServerCertificateName
&RegionId=cn-east-hangzhou-01
&ServerCertificateId=139a****-cn-east-hangzhou-01
&ServerCertificateName=slb-servercertificate-cn-east-hangzhou****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetServerCertificateNameResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FE7BA984</RequestId>
</SetServerCertificateNameResponse>
```

`JSON` format

```
{
    "SetServerCertificateNameResponse": {
        "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FE7BA984"
    }
}
```

14.1.2.6.5. UploadCACertificate

Uploads a CA certificate.

You can upload only one CA certificate in each call. After a CA certificate is uploaded, the ID, name, and fingerprint of the certificate are returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UploadCACertificate	The operation that you want to perform. Set the value to **UploadCACertificate**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed. You can call the `DescribeRegions` operation to query region IDs.
CACertificate	String	Yes	test	The content of the CA certificate that you want to upload.
CACertificateName	String	No	mycacert01	The name of the CA certificate.

Response parameters

Parameter	Type	Example	Description
CACertificateId	String	139a00604ad-cn-east-hangzh****	The ID of the CA certificate.
CACertificateName	String	mycacert01	The name of the CA certificate.
Fingerprint	String	02:DF:AB:ED	The fingerprint of the CA certificate.

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UploadCACertificate
&RegionId=cn-qingdao-env17-d01
&CACertificate=test
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UploadCACertificateResponse>
      <Fingerprint>02:DF:AB:ED</Fingerprint>
      <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
      <CACertificateId>139a00604ad-cn-east-hangzh*****</CACertificateId>
      <CACertificateName>mycacert01</CACertificateName>
</UploadCACertificateResponse>
```

`JSON` format

```
{
    "UploadCACertificateResponse": {
        "Fingerprint": "02:DF:AB:ED",
        "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
        "CACertificateId": "139a00604ad-cn-east-hangzh*****",
        "CACertificateName": "mycacert01"
    }
}
```

14.1.2.6.6. DeleteCACertificate

Deletes a CA certificate.

> **Note** You cannot delete a CA certificate that is in use.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteCACertificate	The operation that you want to perform. Set the value to **DeleteCACertificate**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is created. You can call the `DescribeRegions` operation to query region IDs.
CACertificateId	String	Yes	123157908****_15c73d77203_-986300114_-2110544****	The ID of the CA certificate.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FF7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteCACertificate
&RegionId=cn-east-hangzhou-01
&CACertificateId=123157908****_15c73d77203_-986300114_-211054****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteCACertificateResponse>
      <RequestId>CEFxxxxx72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</DeleteCACertificateResponse>
```

`JSON` format

```
{
    "DeleteCACertificateResponse": {
        "RequestId": "CEFxxxxx72CEB-54B6-4AE8-B225-F876FF7BA984"
    }
}
```

14.1.2.6.7. DescribeCACertificates

Queries CA certificates.

Note For security reasons, only fingerprints and names of the CA certificates are returned, the content of the CA certificates is not returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCACertificates	The operation that you want to perform. Set the value to **DescribeCACertificates**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the CA certificate is created. You can call the `DescribeRegions` operation to query region IDs.
CACertificateId	String	No	139a006****-cn-qingdao-env17-d01	The ID of the CA certificate.

Response parameters

Parameter	Type	Example	Description
CACertificates	Array of CACertificate		Information about the CA certificate.
CACertificate			
CACertificateId	String	139a006****-cn-qingdao-env17-d01	The ID of the CA certificate.
CACertificateName	String	test	The name of the CA certificate.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the CA certificate is created.
Fingerprint	String	AC:BE:FD	The fingerprint of the CA certificate.

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeCACertificates
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeCACertificateResponse>
      <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
      <CACertificates>
            <CACertificateName>test</CACertificateName>
            <Fingerprint>AC:BE:FD</Fingerprint>
            <RegionId>cn-east-hangzhou-01</RegionId>
            <CACertificateId>139a006****-cn-east-hangzhou-02</CACertificateId>
      </CACertificates>
</DescribeCACertificateResponse>
```

`JSON` format

```
{
    "DescribeCACertificateResponse": {
        "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
        "CACertificates": {
            "CACertificateName": "test",
            "Fingerprint": "AC:BE:FD",
            "RegionId": "cn-east-hangzhou-01",
            "CACertificateId": "139a006****-cn-east-hangzhou-02"
        }
    }
}
```

14.1.2.6.8. SetCACertificateName

Sets the name of a CA certificate.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	SetCACertificateName	The operation that you want to perform. Set the value to **SetCACertificateName**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed. You can call the `DescribeRegions` operation to query region IDs.
CACertificateId	String	Yes	139a0****-cn-qingdao-env17-d01	The ID of the CA certificate.
CACertificateName	String	Yes	mycacert02	The name of the CA certificate. The name must be 1 to 80 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter.
access_key_id	String	No	acc-hp34s2h0xx1ht4nwo****	The AccessKey ID.

Response parameters

Parameter	Type	Example	Description
RequestId	String	CEF72CEB-54B6-4AE8-B225-F876FE7BA984	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetCACertificateName
&RegionId=cn-qingdao-env17-d01
&CACertificateId=139a0****-cn-qingdao-env17-d01
&CACertificateName=mycacert02
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetCACertificateNameResponse>
      <RequestId>CEF72CEB-54B6-4AE8-B225-F876FE7BA984</RequestId>
</SetCACertificateNameResponse>
```

`JSON` format

```
{
    "SetCACertificateNameResponse": {
        "RequestId": "CEF72CEB-54B6-4AE8-B225-F876FE7BA984"
    }
}
```

14.1.2.7. Backend servers

14.1.2.7.1. AddBackendServers

Adds backend servers.

Note If multiple identical Elastic Compute Service (ECS) instances are specified in a request, only the first ECS instance is added. The other ECS instances are ignored. If the backend server that you add is the same as one of the existing backend servers that are already associated with the listener, an error message is returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddBackendServers	The operation that you want to perform. Set the value to **AddBackendServers**.
LoadBalancerId	String	Yes	lb-2ze7o5h52g02kkzz****	The ID of the Server Load Balancer (SLB) instance.
				The list of backend servers that you want to add to the SLB instance. The following parameters are used to specify the backend servers: • **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type. You can specify the ID of an ECS instance or an elastic network interface (ENI). If **ServerId** is set to the ID of an ENI, the **Type** parameter is required. • **Weight**: The weight of the backend

Parameter	Type	Required	Example	Description
BackendServers	String	Yes	[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }]	server. ○ Valid values: **0 to 100**. ○ Default value: **100**. **Note** If the weight is set to 0, no requests are forwarded to the backend server. • **Description**: Optional. This parameter must be of the STRING type. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters. • **Type**: Specify the type of backend server. Valid values: ○ **ecs** (default): an ECS instance. ○ **eni**: an ENI. • **ServerIp**: Specify the IP address of the ECS instance or ENI. Examples: • ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]` • ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]` • ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.166.**.**", "Port":"80","Description":"test-113" }]`

Parameter	Type	Required	Example	Description
				Only backend servers that are in the Running state can be added to an SLB instance. You can add at most 20 backend servers in each call. • You can specify ENIs as backend servers only for high-performance SLB instances.

Response parameters

Parameter	Type	Example	Description
LoadBalancerId	String	lb-2ze7o5h52g02kkzz****	The ID of the SLB instance.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	i-2zej4lxhjoq1icu****	The ID of the ECS instance or ENI.
Weight	String	100	The weight of the backend server. Valid values: **0 to 100**. Default value: **100**. If the value is set to **0**, the SLB instance does not forward requests to the backend server.
Description	String	BackendServer	The description of the backend server.
RequestId	String	34B82C81-F13B-4EEB-99F6-A048C67CC830	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddBackendServers
&LoadBalancerId=lb-2ze7o5h52g02kkzz****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddBackendServersResponse>
    <BackendServers>
        <BackendServer>
            <ServerId>i-2zej4lxhjoq1icu*****</ServerId>
            <Weight>100</Weight>
            <Type>ecs</Type>
        </BackendServer>
        <BackendServer>
            <ServerId>i-2ze1u9ywulp5pbv*****</ServerId>
            <Weight>100</Weight>
            <Type>ecs</Type>
        </BackendServer>
    </BackendServers>
    <RequestId>34B82C81-F13B-4EEB-99F6-A048C67CC830</RequestId>
    <LoadBalancerId>lb-2ze7o5h52g02kkzz*****</LoadBalancerId>
</AddBackendServersResponse>
```

`JSON` format

```
{
    "AddBackendServersResponse": {
        "BackendServers": {
            "BackendServer": [
                {
                    "ServerId": "i-2zej4lxhjoq1icu*****",
                    "Weight": 100,
                    "Type": "ecs"
                },
                {
                    "ServerId": "i-2ze1u9ywulp5pbv*****",
                    "Weight": 100,
                    "Type": "ecs"
                }
            ]
        },
        "RequestId": "34B82C81-F13B-4EEB-99F6-A048C67CC830",
        "LoadBalancerId": "lb-2ze7o5h52g02kkzz*****"
    }
}
```

14.1.2.7.2. RemoveBackendServers

Removes backend servers.

Note If the backend server that you want to remove does not belong to the specified Server Load Balancer (SLB) instance, the request fails. However, the system does not report an error.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveBackendServers	The operation that you want to perform. Set the value to **RemoveBackendServers**.

BackendServers	String	Yes	[{"ServerId":"i-2zej4lxhjoq****", "Type": "ecs","Weight":"100"}]	The backend servers to be removed. Valid values:
				• **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type.
				• **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0 to 100**.
				• **Type**: Specify the type of the backend server. Valid values:
				  ○ **ecs**: an Elastic Compute Service (ECS) instance. This is the default value.
				  ○ **eni**: an elastic network interface (ENI).
				Note You can remove up to 20 backend servers in each call.
				Examples:
				• ECS: `[{"ServerId":"i- 2zej 4lx hjoq ***", "Type": "ecs","Weight":"100"}]`
				• ENI: `[{"ServerId":"eni- 2ze 1s dp 5***","Type": "eni","Weight":"100"}]`

LoadBalancerId	String	Yes	lb-bp1qjwo61pqz3ahl****	The ID of the SLB instance.

Response parameters

Parameter	Type	Example	Description
LoadBalancerId	String	lb-bp1vjkb671z53****	The ID of the SLB instance.
BackendServers	Array of BackendServer		The list of backend servers.

Parameter	Type	Example	Description
BackendServer			
ServerId	String	i-jjgjgjgggd****	The ID of the backend server.
Weight	Integer	100	The weight of the backend server. Valid values: **0 to 100**.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveBackendServers
&BackendServers=[{"ServerId":"i-2zej4lxhjoq****", "Type": "ecs","Weight":"100"}]
&LoadBalancerId=lb-bp1qjwo61pqz3ahl****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RemoveBackendServersResponse>
  <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
  <LoadBalancerId>lb-bp1vjkb671z53cy******</LoadBalancerId>
  <BackendServers>
        <BackendServer>
              <ServerId>i-jjgjgjg*****</ServerId>
              <Weight>100</Weight>
        </BackendServer>
        <BackendServer>
              <ServerId>i-jjgjgituitu****</ServerId>
              <Weight>100</Weight>
        </BackendServer>
  </BackendServers>
</RemoveBackendServersResponse>
```

`JSON` format

```
{
    "RemoveBackendServers": {
        "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
        "LoadBalancerId": "lb-bp1vjkb671z53cy******",
        "BackendServers": {
            "BackendServer": [
                {
                    "ServerId": "i-jjgjgjg*****",
                    "Weight": 100
                },
                {
                    "ServerId": "i-jjgjgituitu****",
                    "Weight": 100
                }
            ]
        }
    }
}
```

14.1.2.7.3. SetBackendServers

Sets the weights of backend servers.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetBackendServers	The operation that you want to perform. Set the value to **SetBackendServers**.
LoadBalancerId	String	Yes	lb-bp1qjwo61pqz3a****	The ID of the Server Load Balancer (SLB) instance.
				The list of backend servers that you want to add to the SLB instance. The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements for this parameter in each request. • **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type. • **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1** to **65535**.

Parameter	Type	Required	Example	Description

BackendServers	String	Yes	[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]	• **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0** to **100**.
				• **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
				• **Type**: Specify the type of backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an Elastic Compute Service (ECS) instance
				  ○ **eni**: an elastic network interface (ENI)
				• **ServerIp**: Specify the IP address of the ECS instance or ENI.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.166.**.**", "Port":"80","Description":"test-113" }]`

Parameter	Type	Required	Example	Description

> **Note** The backend servers that you add to an SLB instance must be in the Running state. You can add at most 20 backend servers to an SLB instance in each call. In addition, you can specify ENIs as backend servers only for high-performance SLB instances.

Response parameters

Parameter	Type	Example	Description
LoadBalancerId	String	lb-bp1qjwo61pqz3a****	The ID of the SLB instance.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	eni-hg231****	The ID of the ECS instance.
Weight	String	100	The weight of the backend server.
Description	String	BackendServer	The description of the backend server.
Type	String	ecs	The type of backend server. Valid values: • **ecs** (default): an ECS instance • **eni**: an ENI
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetBackendServers
&LoadBalancerId=lb-bp1qjwo61pqz3a****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetBackendServersResponse>
      <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
      <LoadBalancerId>lb-dhf13*******</LoadBalancerId>
      <BackendServers>
            <BackendServer>
                  <ServerId>eni-hg231**</ServerId>
                  <Weight>100</Weight>
                              <Type>eni</Type>
            </BackendServer>
            <BackendServer>
                  <ServerId>eni-hfhf***</ServerId>
                  <Weight>100</Weight>
                              <Type>eni</Type>
            </BackendServer>
      </BackendServers>
</SetBackendServersResponse>
```

`JSON` format

```
{
    "SetBackendServersResponse": {
        "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
        "LoadBalancerId": "lb-dhf13*******",
        "BackendServers": {
            "BackendServer": [
                {
                    "ServerId": "eni-hg231**",
                    "Weight": 100,
                    "Type": "eni"
                },
                {
                    "ServerId": "eni-hfhf***",
                    "Weight": 100,
                    "Type": "eni"
                }
            ]
        }
    }
}
```

14.1.2.8. vServer groups

14.1.2.8.1. CreateVServerGroup

Creates a vServer group and adds backend servers to the vServer group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVServerGroup	The operation that you want to perform. Set the value to **CreateVServerGroup**.
LoadBalancerId	String	Yes	lb-bp1qjwo61pqz3ahl****	The ID of the Server Load Balancer (SLB) instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.
VServerGroupName	String	No	Group1	The name of the vServer group. The name must be 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_).
			[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-	The list of backend servers to be added. The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements in a list for each request. • **ServerId**: Required. Specify the ID of an Elastic Compute Service (ECS) instance or an elastic network interface (ENI). This parameter must be of the STRING type. • **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1** to **65535**. • **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0** to **100**. • **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.

Parameter	Type	Required	Example	Description

BackendServers	String	No	112" } { "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-112" }]	• **Type**: Required. Specify the type of the backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an ECS instance
				  ○ **eni**: an ENI.
				• **ServerIp**: The IP address of the ECS instance or ENI.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.166.**.**", "Port":"80","Description":"test-113" }]`

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6****	The ID of the vServer group.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	vm-2****	The ID of the ECS instance or ENI.
Port	Integer	70	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.

Parameter	Type	Example	Description
Description	String	vServerGroup	The description of the vServer group.
ServerType	String	ECS	
Type	String	Type	The type of backend server. Valid values: • **ecs** (default): an ECS instance • **eni**: an ENI
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVServerGroup
&LoadBalancerId=lb-bp1qjwo61pqz3ahl****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVServerGroupResponse>
  <VServerGroupId>rsp-bp1i4c******</VServerGroupId>
  <RequestId>3EBBDBAE-8E8B-438F-A109-95C2FDB2C333</RequestId>
  <BackendServers>
        <BackendServer>
              <Type>ecs</Type>
              <ServerId>i-bp1ds2yjlk66********</ServerId>
              <Description>test-11244</Description>
              <Port>80</Port>
              <Weight>100</Weight>
        </BackendServer>
  </BackendServers>
</CreateVServerGroupResponse>
```

`JSON` format

```
{
  "VServerGroupId": "rsp-bp1i4c3******",
  "RequestId": "3EBBDBAE-8E8B-438F-A109-95C2FDB2C333",
  "BackendServers": {
    "BackendServer": [
      {
        "Type": "ecs",
        "ServerId": "i-bp1ds2yjlk666******",
        "Description": "test-11244",
        "Port": 80,
        "Weight": 100
      }
    ]
  }
}
```


14.1.2.8.2. SetVServerGroupAttribute

Modifies the configurations of a vServer group.

You can call the operation to modify only configurations such as the weight and port of a backend server.

- If you want to modify backend servers in a specified vServer group, call the `ModifyVServerGroupBackendServers` operation.
- If you want to add backend servers, call the `AddVServerGroupBackendServers` operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SetVServerGroupAttribute	The operation that you want to perform. Set the value to **SetVServerGroupAttribute**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6****	The ID of the vServer group.
VServerGroupName	String	No	vserver-group-test	The name of the vServer group.
				The backend servers in the vServer group.

Parameter	Type	Required	Example	Description

BackendServers	String	No	[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }]	You can add up to 20 backend servers in each call.
				• **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type.
				• **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1** to **65535**.
				• **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0** to **100**.
				• **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
				• **Type**: The type of the backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an Elastic Compute Service (ECS) instance
				  ○ **eni**: an elastic network interface (ENI)
				• **ServerIp**: The IP address of the ECS instance or ENI.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.16`

Parameter	Type	Required	Example	Description
				6.**.**", "Port":"80","Description":"test-113" }]

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6****	The ID of the vServer group.
VServerGroupName	String	Group1	The name of the vServer group.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	i-bp1ek6yd7jvkx****	The ID of the ECS instance or ENI.
Port	Integer	70	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
Description	String	vServerGroupDescription.	The description of the vServer group.
Type	String	ecs	The type of backend server. Valid values: • **ecs** (default): an ECS instance • **eni**: an ENI
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SetVServerGroupAttribute
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SetVServerGroupAttributeResponse>
  <BackendServers>
        <BackendServer>
              <ServerId>i-bp1ek6yd7jvkx*****</ServerId>
              <Port>80</Port>
              <Weight>100</Weight>
              <Type>ecs</Type>
        </BackendServer>
  </BackendServers>
  <RequestId>A4FDF333-F904-4540-88FC-ED6F87AEFFCB</RequestId>
  <VServerGroupId>rsp-bp1d2e3*****</VServerGroupId>
  <VServerGroupName>test1</VServerGroupName>
</SetVServerGroupAttributeResponse>
```

`JSON` format

```
{
    "SetVServerGroupAttributeResponse": {
        "BackendServers": {
            "BackendServer": {
                "ServerId": "i-bp1ek6yd7jvkx*****",
                "Port": 80,
                "Weight": 100,
                "Type": "ecs"
            }
        },
        "RequestId": "A4FDF333-F904-4540-88FC-ED6F87AEFFCB",
        "VServerGroupId": "rsp-bp1d2e3*****",
        "VServerGroupName": "test1"
    }
}
```

14.1.2.8.3. AddVServerGroupBackendServers

Adds backend servers to a specified vServer group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddVServerGroupBackendServers	The operation that you want to perform. Set the value to **AddVServerGroupBackendServers**.
				The list of backend servers that you want to add to the vServer group. You can specify up to 20 backend servers in each request.

Parameter	Type	Required	Example	Description

BackendServers	String	Yes	[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6*", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }]	The following parameters are used to specify the backend servers:
				• **ServerId**: The ID of the backend server. You can specify the ID of an Elastic Compute Service (ECS) instance or an elastic network interface (ENI).
				• **Port**: Required. The port that is used by the backend server. Valid values: **1 to 65535**.
				• **Weight**: The weight of the backend server. Valid values: **0 to 100**. Default value: 100. If the value is set to 0, no requests are forwarded to the backend server.
				• **Type**: The type of backend server. Valid values:
				  ○ **ecs**: an ECS instance. This is the default value.
				  ○ **eni**: an ENI.
				• **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
				• **ServerIp**: The IP address of the ECS instance or ENI.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.166.**.**", "Port":"80","Descrip`

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6****	The ID of the vServer group.

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6j****	The ID of the vServer group.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	vm-231	The ID of the ECS instance or ENI.
Port	Integer	70	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
Description	String	test	The description of the vServer group.
Type	String	ecs	The type of backend server. Valid values: • **ecs** (default): an ECS instance • **eni**: an ENI
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddVServerGroupBackendServers
&BackendServers=[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp":
"192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weigh
t": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }
]
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddVServerGroupBackendServersResponse>
  <VServerGroupId>rsp-cige6j******</VServerGroupId>
  <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
  <BackendServers>
        <Type>ecs</Type>
        <Description>test</Description>
        <ServerId>vm-231</ServerId>
        <Weight>100</Weight>
        <Port>70</Port>
  </BackendServers>
</AddVServerGroupBackendServersResponse>
```

`JSON` format

```
{"VServerGroupId":"rsp-cige6j******",
"RequestId":"9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C",
"BackendServers":[
    {"Type":"ecs","Description":"test","ServerId":"vm-231","Weight":"100","Port":"70"}
    ]
    }
```

14.1.2.8.4. RemoveVServerGroupBackendServers

Removes a backend server from a specified vServer group.

Note If one or more backend servers specified by **BackendServers** do not exist in the vServer group, the backend servers are ignored and no error message is returned.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveVServerGroupBackendServers	The operation that you want to perform. Set the value to **RemoveVServerGroupBackendServers**.

BackendServers	String	Yes	[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }]	The list of backend servers that you want to remove from the vServer group.
				You can specify at most 20 backend servers for a vServer group in each call.
				The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements for this parameter in each request.
				• **ServerId**: Required. Specify the ID of an Elastic Compute Service (ECS) instance or an elastic network interface (ENI). This parameter must be of the STRING type.
				• **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1 to 65535**.
				• **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0 to 100**.
				• **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
				• **Type**: Specify the type of backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs**: an ECS instance. This is the default value.
				  ○ **eni**: an ENI.
				• **ServerIp**: Specify the IP address of the ECS instance or ENI.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6****	The ID of the vServer group.

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6j****	The ID of the vServer group.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	vm-230	The ID of the ECS instance or ENI.
Port	Integer	80	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveVServerGroupBackendServers
&BackendServers=[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp":
"192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weigh
t": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80","Description":"test-113" }
]
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RemoveVServerGroupBackendServersResponse>
   <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
   <VServerGroupId>rsp-cige6******</VServerGroupId>
   <BackendServers>
      <BackendServer>
         <ServerId>vm-231</ServerId>
         <Port>70</Port>
         <Weight>100</Weight>
                              <Type>ecs</Type>
      </BackendServer>
   </BackendServers>
</RemoveVServerGroupBackendServersResponse>
```

`JSON` format

```
{
  "RemoveVServerGroupBackendServersResponse": {
    "RequestId": "9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C",
    "VServerGroupId": "rsp-cige6******",
    "BackendServers": {
      "BackendServer": {
        "ServerId": "vm-231",
        "Port": "70",
        "Weight": "100",
        "Type": "ecs"
      }
    }
  }
}
```

14.1.2.8.5. ModifyVServerGroupBackendServers

Replaces backend servers in a specified vServer group.

You can call this operation to replace the backend servers in a specified vServer group. To modify the configurations of the backend servers, such as their weights, you can call the `SetVServerGroupAttribute` operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVServerGroupBackendServers	The operation that you want to perform. Set the value to **ModifyVServerGroupBackendServers**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6j****	The ID of the vServer group.

OldBackendServers	String	No	[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]	The list of backend servers to be replaced.
				The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements for this parameter in each request.
				• **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type.
				• **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1 to 65535**.
				• **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0 to 100**.
				• **Description**: Optional. Specify the description of the backend server. This parameter must be of the STRING type. The description must be 1 to 80 characters in length, and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters.
				• **Type**: Specify the type of backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an Elastic Compute Service (ECS) instance
				  ○ **eni**: an ENI
				• **ServerIp**: Specify the IP address of the ECS instance or ENI
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]`

Parameter	Type	Required	Example	Description
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]` • ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.16.6.**.**", "Port":"80","Description":"test-113" }]`
NewBackendServers	String	No	[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.XX.XX.6", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.XX.XX.6", "Port":"80" "Desc	The list of backend servers to be added. You can specify at most 20 backend servers for a vServer group in each call. The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements for this parameter in each request. • **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type. • **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1 to 65535**. • **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0 to 100**. • **Description**: Optional. The description of the backend server. This parameter must be of the STRING type. It can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). It can also contain Chinese characters. • **Type**: The type of the backend server. This parameter must be of the STRING type. Valid values: ○ **ecs** (default): an ECS instance ○ **eni**: an ENI • **ServerIp**: the IP address of the ECS

Parameter	Type	Required	Example	Description
			"Description":"test-113" }]	instance or ENI Examples: • ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","Description":"test-112" }]` • ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" }]` • ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","Description":"test-112" },{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "172.166.**.**", "Port":"80","Description":"test-113" }]`

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6j****	The ID of the vServer group.
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	vm-236	The ID of the ECS instance or ENI.
Port	Integer	70	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVServerGroupBackendServers
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6j****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVServerGroupBackendServersResponse>
      <VServerGroupId>rsp-cige6j******</VServerGroupId>
      <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
      <BackendServers>
            <ServerId>vm-236</ServerId>
            <Weight>100</Weight>
            <Port>70</Port>
      </BackendServers>
</ModifyVServerGroupBackendServersResponse>
```

`JSON` format

```
{
    "ModifyVServerGroupBackendServersResponse": {
        "VServerGroupId": "rsp-cige6j******",
        "RequestId": "9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C",
        "BackendServers": {
            "ServerId": "vm-236",
            "Weight": 100,
            "Port": 70
        }
    }
}
```

14.1.2.8.6. DeleteVServerGroup

Deletes a vServer group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVServerGroup	The operation that you want to perform. Set the value to **DeleteVServerGroup**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6j****	The ID of the vServer group. **Note** You cannot delete a vServer group that is in use.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVServerGroup
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6j****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVServerGroupResponse>
   <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
</DeleteVServerGroupResponse>
```

`JSON` format

```
{
"RequestId":"9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C"
}
```

14.1.2.8.7. DescribeVServerGroups

Queries the vServer groups of a Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVServerGroups	The operation that you want to perform. Set the value to **DescribeVServerGroups**.
LoadBalancerId	String	Yes	lb-bp1o94dp5i6ea****	The ID of the SLB instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.

Response parameters

Parameter	Type	Example	Description
VServerGroups	Array of VServerGroup		The list of backend servers.
VServerGroup			
VServerGroupId	String	rsp-bp1oygn****	The ID of the vServer group.
VServerGroupName	String	k8s/31065/nginx-ingress-lb/kube-system/clust****"	The name of the vServer group.
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVServerGroups
&LoadBalancerId=lb-bp1o94dp5i6ea****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVServerGroupsResponse>
  <VServerGroups>
        <VServerGroup>
              <VServerGroupId>rsp-bp1oygn******</VServerGroupId>
              <VServerGroupName>k8s/31065/nginx-ingress-lb/kube-system/clust****</VServerGr
oupName>
              <AssociatedObjects>
                    <Listeners>
            </Listeners>
                    <Rules>
            </Rules>
              </AssociatedObjects>
        </VServerGroup>
        <VServerGroup>
              <VServerGroupId>rsp-bp1i6sn******</VServerGroupId>
              <VServerGroupName>k8s/31605/nginx-ingress-lb/kube-system/clusterid</VServerGr
oupName>
              <AssociatedObjects>
                    <Listeners>
            </Listeners>
                    <Rules>
            </Rules>
              </AssociatedObjects>
        </VServerGroup>
        <VServerGroup>
              <VServerGroupId>rsp-bp1f85n******</VServerGroupId>
              <VServerGroupName>VSG1</VServerGroupName>
              <AssociatedObjects>
                    <Listeners>
            </Listeners>
                    <Rules>
            </Rules>
              </AssociatedObjects>
        </VServerGroup>
  </VServerGroups>
  <RequestId>31ADDBCD-275F-4C37-B0A3-5DFC8564E686</RequestId>
</DescribeVServerGroupsResponse>
```

`JSON` format

```
{
 "VServerGroups": {
  "VServerGroup": [
   {
    "VServerGroupId": "rsp-bp1oygn******",
    "VServerGroupName": "k8s/31065/nginx-ingress-lb/kube-system/clust****",
    "AssociatedObjects": {
     "Listeners": {
      "Listener": []
     },
     "Rules": {
      "Rule": []
     }
    }
   },
   {
    "VServerGroupId": "rsp-bp1i6sn******",
    "VServerGroupName": "k8s/31605/nginx-ingress-lb/kube-system/clusterid",
    "AssociatedObjects": {
     "Listeners": {
      "Listener": []
     },
     "Rules": {
      "Rule": []
     }
    }
   },
   {
    "VServerGroupId": "rsp-bp1f85n******",
    "VServerGroupName": "VSG1",
    "AssociatedObjects": {
     "Listeners": {
      "Listener": []
     },
     "Rules": {
      "Rule": []
     }
    }
   }
  ]
 },
 "RequestId": "31ADDBCD-275F-4C37-B0A3-5DFC8564E686"
}
```


14.1.2.8.8. DescribeVServerGroupAttribute

Queries detailed information about a vServer group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVServerGroupAttribute	The operation that you want to perform. Set the value to **DescribeVServerGroupAttribute**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
VServerGroupId	String	Yes	rsp-cige6****	The ID of the vServer group.

Response parameters

Parameter	Type	Example	Description
VServerGroupId	String	rsp-cige6****	The ID of the vServer group.
VServerGroupName	String	Group1	The name of the vServer group. The name is 1 to 80 characters in length, and can contain Chinese characters, letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_).
BackendServers	Array of BackendServer		The list of backend servers.
BackendServer			
ServerId	String	vm-233	The ID of the Elastic Compute Service (ECS) instance.
Port	Integer	90	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
Description	String	vServerGroupDescription.	The description of the vServer group.
ServerType	String	ecs	

Parameter	Type	Example	Description
Type	String	ecs	The type of backend server. Valid values: • **ecs** (default): an Elastic Compute Service (ECS) instance • **eni**: an elastic network interface (ENI)
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVServerGroupAttribute
&RegionId=cn-qingdao-env17-d01
&VServerGroupId=rsp-cige6****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVServerGroupAttributeResponse>
   <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
   <VServerGroupId>rsp-cige6******</VServerGroupId>
   <VServerGroupName>Group1</VServerGroupName>
   <BackendServers>
      <BackendServer>
         <ServerId>vm-232</ServerId>
         <Port>80</Port>
         <Weight>100</Weight>
      </BackendServer>
      <BackendServer>
         <ServerId>vm-233</ServerId>
         <Port>90</Port>
         <Weight>100</Weight>
      </BackendServer>
   </BackendServers>
</DescribeVServerGroupAttributeResponse>
```

`JSON` format

```
{"VServerGroupId":"rsp-cige6*****","RequestId":"9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C","VSer
verGroupName":"Group1","BackendServers":[{"ServerType":"ecs","Type":"ecs","ServerId":"vm-23
3","Description":"vServerGroupDescription.","VpcId":"vpc-**","Port":"90","ServerIp":"192.16
8.*.*","Weight":"100"}]}
```

14.1.2.9. Primary/secondary server groups

14.1.2.9.1. CreateMasterSlaveServerGroup

Creates a primary/secondary server group. A primary/secondary server group contains only two Elastic Compute Service (ECS) instances. One of the ECS instances serves as the primary server. The other ECS instance serves as the secondary server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateMasterSlaveServerGroup	The operation that you want to perform. Set the value to **CreateMasterSlaveServerGroup**.
LoadBalancerId	String	Yes	lb-bp1hv944r69al4j****	The ID of the Server Load Balancer (SLB) instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.
MasterSlaveServerGroupName	String	No	sg-atstuj3rtopty****	The name of the primary/secondary server group.
				The list of backend servers in the primary/secondary server group. The value of this parameter must be a STRING list in the JSON format. You can specify at most 20 elements for this parameter in each call. • **ServerId**: Required. Specify the ID of the backend server. This parameter must be of the STRING type. • **Port**: Required. Specify the port that is used by the backend server. This parameter must be of the INTEGER type. Valid values: **1 to 65535**. • **Weight**: Required. Specify the weight of the backend server. This parameter must be of the INTEGER type. Valid values: **0 to 100**. • **Description**: Optional. The description of the backend server. This parameter must be of the

Parameter	Type	Required	Example	Description

MasterSlaveBackendServers	String	No	[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Slave","Description":"test-112" }]	STRING type. The description must be 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_). The description can contain Chinese characters.
				• **ServerType**: Specify the type of the backend server. This parameter must be of the STRING type. Valid values:
				  ○ **Master**: primary server
				  ○ **Slave**: secondary server
				• **Type**: The type of the backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an ECS instance
				  ○ **eni**: an elastic network interface (ENI)
				• **ServerIp**: the IP address of the ECS instance or ENI.
				A primary/secondary server group can contain at most two backend servers.
				If you do not set this parameter, an empty primary/secondary server group is created.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Slave","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","ServerType":"Slave","Description": "test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "`
				  ○ **Master**: primary server
				  ○ **Slave**: secondary server
				• **Type**: The type of the backend server. This parameter must be of the STRING type. Valid values:
				  ○ **ecs** (default): an ECS instance
				  ○ **eni**: an elastic network interface (ENI)
				• **ServerIp**: the IP address of the ECS instance or ENI.
				A primary/secondary server group can contain at most two backend servers.
				If you do not set this parameter, an empty primary/secondary server group is created.
				Examples:
				• ECS: `[{ "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "i-xxxxxxxxx", "Weight": "100", "Type": "ecs", "Port":"80","ServerType":"Slave","Description":"test-112" }]`
				• ENI: `[{ "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","ServerType":"Slave","Description": "test-112" }]`
				• ENI with multiple IP addresses: `[{ "ServerId": "eni-xxxxxxxxx", "`

Parameter	Type	Required	Example	Description
				Weight": "100", "Type": "eni", "ServerIp": "192.168.**.**", "Port":"80","ServerType":"Master","Description":"test-112" }, { "ServerId": "eni-xxxxxxxxx", "Weight": "100", "Type": "eni","ServerIp": "192.168.**.**", "Port":"80","ServerType":"Slave","Description":"test-112" }]

Response parameters

Parameter	Type	Example	Description
MasterSlaveServerGroupId	String	rsp-cige6j****	The ID of the primary/secondary server group.
MasterSlaveBackendServers	Array of MasterSlaveBackendServer		The list of backend servers in the primary/secondary server group.
MasterSlaveBackendServer			
ServerId	String	vm-2h****	The ID of the ECS instance or ENI that is added.
Port	Integer	90	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.
ServerType	String	Slave	Indicates whether the backend server is a primary or secondary server. Valid values: **Master** and **Slave**. Default value: Master.
Description	String	Primary/SecondaryServerGroupDescription.	The description of the primary/secondary server group. The description is 1 to 80 characters in length and can contain letters, digits, hyphens (-), forward slashes (/), periods (.),and underscores (_).
Type	String	ecs	The type of backend server. Valid values: • **ecs** (default): an ECS instance • **eni**: an ENI

Parameter	Type	Example	Description
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateMasterSlaveServerGroup
&LoadBalancerId=lb-bp1hv944r69al4j****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateMasterSlaveServerGroupResponse>
      <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
      <MasterSlaveServerGroupId>rsp-cige******</MasterSlaveServerGroupId>
      <MasterSlaveBackendServers>
            <MasterSlaveBackendServers>
                  <ServerId>vm-gtgt***</ServerId>
                  <Port>80</Port>
                  <Weight>100</Weight>
                  <ServerType>Master</ServerType>
            </MasterSlaveBackendServers>
            <MasterSlaveBackendServers>
                  <ServerId>vm-tygtyg****</ServerId>
                  <Port>90</Port>
                  <Weight>100</Weight>
                  <ServerType>Slave</ServerType>
            </MasterSlaveBackendServers>
      </MasterSlaveBackendServers>
</CreateMasterSlaveServerGroupResponse>
```

`JSON` format

```
{
    "CreateMasterSlaveServerGroupResponse": {
        "RequestId": "9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C",
        "MasterSlaveServerGroupId": "rsp-cige******",
        "MasterSlaveBackendServers": {
            "MasterSlaveBackendServers": [
                {
                    "ServerId": "vm-gtgt***",
                    "Port": 80,
                    "Weight": 100,
                    "ServerType": "Master"
                },
                {
                    "ServerId": "vm-tygtyg****",
                    "Port": 90,
                    "Weight": 100,
                    "ServerType": "Slave"
                }
            ]
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
400	BACKEND_SERVERS_NUM_MUST_BE_TWO	Backend servers num must be 2.	The error message returned because two backend servers must be specified.
400	BACKEND_SERVERS_HAVE_SAME_PORT_AND_SERVERID	Backend servers have same port and serverId.	The error message returned because a backend server with the same port and ID is already specified in the server group.
400	BACKEND_SERVERS_CAN_ONLY_CONTAIN_ONE_MASTER_AND_ONE_SLAVE	Backend servers can only contain one master and one slave.	The error message returned because a primary/secondary server group can contain only one primary server and one secondary server.
400	BACKEND_SERVER_ID_CAN_NOT_EMPTY	Backend server id can not empty.	The error message returned because the ID of the backend server is not specified.
400	INVALID_SERVER_TYPE	Invalid server type.	The error message returned because the specified type of backend server is invalid.
400	BACKEND_SERVER_PORT_CAN_NOT_EMPTY	Backend server port can not empty.	The error message returned because the port of the backend server is not specified.

HttpCode	Error code	Error message	Description
400	RealServerPortNotSupport	Real server port not support.	The error message returned because the specified port of the backend server is invalid.

14.1.2.9.2. DeleteMasterSlaveServerGroup

Deletes a specified primary/secondary server group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteMasterSlaveServerGroup	The operation that you want to perform. Set the value to **DeleteMasterSlaveServerGroup**.
MasterSlaveServerGroupId	String	Yes	rsp-cige6****	The ID of the primary/secondary server group. **Note** You cannot delete a primary/secondary server group that is in use.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteMasterSlaveServerGroup
&MasterSlaveServerGroupId=rsp-cige6****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteMasterSlaveServerGroupResponse>
   <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
</DeleteMasterSlaveServerGroupResponse>
```

`JSON` format

```
{
"RequestId":"9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C"
}
```

14.1.2.9.3. DescribeMasterSlaveServerGroups

Queries backend servers in a primary/secondary server group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMasterSlaveServerGroups	The operation that you want to perform. Set the value to **DescribeMasterSlaveServerGroups**.
LoadBalancerId	String	Yes	lb-bp14zi0n66zpg6o****	The ID of the Server Load Balancer (SLB) instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.

Response parameters

Parameter	Type	Example	Description
MasterSlaveServerGroups	Array of MasterSlaveServerGroup		The list of backend servers in the primary/secondary server group.
MasterSlaveServerGroup			
MasterSlaveServerGroupId	String	rsp-0bfuc****	The ID of the primary/secondary server group.

Parameter	Type	Example	Description
MasterSlaveServerGroupName	String	Group3	The name of the primary/secondary server group.
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeMasterSlaveServerGroups
&LoadBalancerId=lb-bp14zi0n66zpg6o****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeMasterSlaveServerGroupsResponse>
      <RequestId>2631BB5E-B576-4925-BDED-07A66D23E5DE</RequestId>
      <MasterSlaveServerGroups>
     <MasterSlaveServerGroup>
        <MasterSlaveServerGroupId>rsp-bp1ro3mw******</MasterSlaveServerGroupId>
        <MasterSlaveServerGroupName>test</MasterSlaveServerGroupName>
     </MasterSlaveServerGroup>
      </MasterSlaveServerGroups>
</DescribeMasterSlaveServerGroupsResponse>
```

`JSON` format

```
{
    "RequestId": "265989FE-136B-4D6A-B549-FD40E7",
    "MasterSlaveServerGroups": {
        "MasterSlaveServerGroup": [
            {
                "MasterSlaveServerGroupId": "rsp-bp1nly******",
                "MasterSlaveServerGroupName": "primary/secondary1",
                "AssociatedObjects": {
                    "Listeners": {
                        "Listener": [ ]
                    }
                }
            }
        ]
    }
}
```

14.1.2.9.4. DescribeMasterSlaveServerGroupAttribute

Queries detailed information about a primary/secondary server group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMasterSlaveServerGroupAttribute	The operation that you want to perform. Set the value to **DescribeMasterSlaveServerGroupAttribute**.
MasterSlaveServerGroupId	String	Yes	rsp-cige6j****	The ID of the primary/secondary server group.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is created.

Response parameters

Parameter	Type	Example	Description
MasterSlaveServerGroupId	String	rsp-cige6****	The ID of the primary/secondary server group.
MasterSlaveServerGroupName	String	Group1	The name of the primary/secondary server group.
MasterSlaveBackendServers	Array of MasterSlaveBackendServer		The list of backend servers in the primary/secondary server group.
MasterSlaveBackendServer			
ServerId	String	vm-hrf****	The ID of the Elastic Compute Service (ECS) instance or elastic network interface (ENI).
Port	Integer	90	The port that is used by the backend server.
Weight	Integer	100	The weight of the backend server.

Parameter	Type	Example	Description
ServerType	String	Slave	The type of backend server. Valid values: **Master** and **Slave**. Default value: Master.
Description	String	Primary/SecondaryServerGroupDescription.	The description of the primary/secondary server group.
Type	String	ecs	The type of backend server. Valid values: • **ecs**: an ECS instance. This is the default value. • **eni**: an ENI.
RequestId	String	9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeMasterSlaveServerGroupAttribute
&MasterSlaveServerGroupId=rsp-cige6j****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeMasterSlaveServerGroupAttributeResponse>
    <RequestId>9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C</RequestId>
    <MasterSlaveServerGroupId>rsp-cige6******</MasterSlaveServerGroupId>
    <MasterSlaveBackendServers>
          <MasterSlaveBackendServers>
                <ServerId>vm-sshssh****</ServerId>
                <Port>80</Port>
                <Weight>100</Weight>
                <ServerType>Master</ServerType>
          </MasterSlaveBackendServers>
          <MasterSlaveBackendServers>
                <ServerId>vm-ffff*****</ServerId>
                <Port>90</Port>
                <Weight>100</Weight>
                <ServerType>Slave</ServerType>
          </MasterSlaveBackendServers>
    </MasterSlaveBackendServers>
</DescribeMasterSlaveServerGroupAttributeResponse>
```

`JSON` format

```
{
  "DescribeMasterSlaveServerGroupAttributeResponse": {
    "RequestId": "9DEC9C28-AB05-4DDF-9A78-6B08EC9CE18C",
    "MasterSlaveServerGroupId": "rsp-cige6******",
    "MasterSlaveBackendServers": {
      "MasterSlaveBackendServers": [
        {
          "ServerId": "vm-sshssh****",
          "Port": "80",
          "Weight": "100",
          "ServerType": "Master"
        },
        {
          "ServerId": "vm-ffff*****",
          "Port": "90",
          "Weight": "100",
          "ServerType": "Slave"
        }
      ]
    }
  }
}
```

14.1.2.10. Tags

14.1.2.10.1. AddTags

Adds tags to a Server Load Balancer (SLB) instance.

When you call this operation, take note of the following items:

- You can add at most 10 tags to an SLB instance.
- You can specify at most five tags in each request.
- All tags and keys added to an SLB instance must be unique.
- If you add a tag that has the same key as an existing tag but with a different value, the new tag overwrites the existing tag.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddTags	The operation that you want to perform. Set the value to **AddTags**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.
Tags	String	Yes	[{"TagKey":"Key1","TagValue":"Value1"},{"TagKey":"Key2","TagValue":"Value2"}]	The list of tags to be added.

Response parameters

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddTags
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&RegionId=cn-qingdao-env17-d01
&Tags=[{"TagKey":"Key1","TagValue":"Value1"},{"TagKey":"Key2","TagValue":"Value2"}]
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddTagsResponse>
   <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
</AddTagsResponse>
```

`JSON` format

```
{
  "RequestId":"365F4154-92F6-4AE4-92F8-7FF34B540710"
}
```

14.1.2.10.2. DescribeTags

Queries a list of tags.

When you call this operation, take note of the following items:

- You can query tags by instance ID, tag key, and tag value. If the operation is successful, the system

returns all tags that match the specified conditions.

- If the logical relationship among the specified conditions is `AND`, only tags that match all of the specified conditions are returned.
- If the Tagkey parameter is specified and the Tagvalue parameter is not specified, all tags that contain the specified tag key are returned.
- If you have specified the Tagvalue parameter in a request, you must also specify the Tagkey parameter in this request.
- If you specify both the Tagkey and Tagvalue parameters, tags with the specified key-value pair are returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeTags	The operation that you want to perform. Set the value to **DescribeTags**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the Server Load Balancer (SLB) instance is deployed.
LoadBalancerId	String	No	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.
Tags	String	No	[{"TagKey":"Key1","TagValue":"Value1"},{"TagKey":"Key2","TagValue":"Value2"}]	The list of tags to be queried.
DistinctKey	Boolean	No	false	Specifies whether the tag is DistinctKey. Valid values: **true** and **false**.
PageSize	Integer	No	50	The number of entries to return on each page. Default value: **50**. Maximum value: **100**.
PageNumber	Integer	No	1	The number of the page to return. Minimum value: **1**. Default value: **1**.

Response parameters

Parameter	Type	Example	Description
TagSets	Array of TagSet		The list of tags.
TagSet			
TagKey	String	test	The key of the tag.
TagValue	String	api	The value of the tag.
InstanceCount	Integer	10	The number of instances to which the tag is added.
PageSize	Integer	50	The number of entries returned on each page. Default value: **50**. Maximum value: **100**.
PageNumber	Integer	1	The number of the returned page. Minimum value: **1**. Default value: **1**.
TotalCount	Integer	1	The total number of instances that are returned after the tags are matched against the specified conditions.
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeTags
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeTagsResponse>
   <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
    <TagSets>
            <TagSet>
                  <TagKey>test</TagKey>
                  <TagValue>api</TagValue>
            </TagSet>
      </TagSets>
   <PageSize>50</PageSize>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
</DescribeTagsResponse>
```

`JSON` format

```
{
    "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710",
    "TagSets": {
        "TagSet": [
            {
                "TagKey": "test",
                "TagValue": "api"
            }
        ],
        "PageNumber": 1,
        "PageSize": 50,
        "TotalCount": 1
    }
}
```

14.1.2.10.3. RemoveTags

Removes tags from a Server Load Balancer (SLB) instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveTags	The operation that you want to perform. Set the value to **RemoveTags**.
LoadBalancerId	String	Yes	lb-bp1b6c719dfa08ex****	The ID of the SLB instance.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the SLB instance is deployed.

Parameter	Type	Required	Example	Description
Tags	String	Yes	[{"TagKey":"Key1","TagValue":"Value1"}, {"TagKey":"Key2","TagValue":"Value2"}]	The list of tags that you want to remove.

Response parameters

Parameter	Type	Example	Description
RequestId	String	365F4154-92F6-4AE4-92F8-7FF34B540710	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=RemoveTags
&LoadBalancerId=lb-bp1b6c719dfa08ex****
&RegionId=cn-qingdao-env17-d01
&Tags=[{"TagKey":"Key1","TagValue":"Value1"},{"TagKey":"Key2","TagValue":"Value2"}]
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RemoveTagsResponse>
   <RequestId>365F4154-92F6-4AE4-92F8-7FF34B540710</RequestId>
</RemoveTagsResponse>
```

`JSON` format

```
{ "RequestId": "365F4154-92F6-4AE4-92F8-7FF34B540710" }
```

14.1.2.11. Error codes

Error code	Error message	HTTP status code	Description
CertificateAndPrivateKeyIsRefered	Certificate and PrivateKey Is Refered.	400	The error message returned because the certificate is used by other resources.

Error code	Error message	HTTP status code	Description
CertificateNotMatchPrivateKey	Certificate and key does not match.	400	The error message returned because the certificate and the private key do not match.
CheckedListenerNotFound	No health-checked Listener to the specified port of the Load Balancer.	404	The error message returned because health checks are disabled.
Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	403	The error message returned because you are unauthorized to perform the operation.
Forbidden	User not authorized to operate on the specified resource.	403	The error message returned because you are unauthorized to perform the operation.
IncorrectListenerAccessControlStatusStatus	Current listener access control status does not support this operation.	500	The error message returned because the access control configuration of the listener is in a state that does not support the operation.
InternalError	The request processing has failed due to backend service exception.	400	The error message returned because an internal error occurred.
InternalInvokeError	The request processing has failed due to some unknown error, exception or failure.	500	The error message returned because an internal error occurred.

Error code	Error message	HTTP status code	Description
InvalidBackendServers.Inconsistent	Specified LoadBalancer instance's addresstype is private, so it is forbidden to add ecs vpc backendservers for now.	400	The error message returned because the network types of the Elastic Compute Service (ECS) instances and that of the Server Load Balancer (SLB) instance do not match.
InvalidBackendServers.Inconsistent	All BackendServers on one Specified LoadBalancer have to be in the same vpc or all classic	400	The error message returned because you cannot specify both ECS instances in a classic network and ECS instances in a virtual private cloud (VPC) as the backend servers of an SLB instance.
InvalidIdentity	The request identity was not allowed operated.	400	The error message returned because you are unauthorized to perform the operation.
InvalidLoadBalancerId.NotFound	LoadBalancerId does not exist.	404	The error message returned because the specified SLB instance is invalid.
InvalidParameter	The specified parameter ServerCertificate format is error.	404	The error message returned because the specified certificate is invalid.
InvalidParameter	The specified parameter ServerCertificateId is empty.	404	The error message returned because the certificate is not specified.
InvalidParameter	The specified parameter ServerCertificateId is not support.	404	The error message returned because the ID of the server certificate is invalid.
InvalidParameter	The specified parameter ServerCertificate or Key is empty.	404	The error message returned because the certificate and the private key are not specified.

Error code	Error message	HTTP status code	Description
InvalidParameter	The specified parameter key format is error.	404	The error message returned because the specified private key is invalid.
InvalidParameter	Specified region does not supported.	404	The error message returned because the specified region does not support the operation.
InvalidParameter	Port is not Integer.	400	The error message returned because the specified port is invalid. Valid values: 1 to 65535.
InvalidParameter	The specified port is not valid.	400	The error message returned because the specified port is invalid. Valid values: 1 to 65535.
InvalidParameter	The specified bandwidth is not valid.	400	The error message returned because the specified bandwidth limit is invalid.
InvalidParameter	Specified parameter Check is not valid.	400	The error message returned because a specified parameter is invalid.
InvalidParameter	The specified parameter HealthCheckHttpCode is not valid.	400	The error message returned because the specified value of HealthCheckHttpCode is invalid.
InvalidParameter	The specified parameter bandwidth is not valid, out of the instance total bandwidth.	400	The error message returned because the specified value of Bandwidth exceeds the bandwidth limit of the instance.
InvalidParameter	The specified parameter bandwidth is not valid.	400	The error message returned because the specified value of Bandwidth is invalid.
InvalidParameter	The specified parameter HealthCheck is not valid.	400	The error message returned because the specified health check configuration is invalid.

Error code	Error message	HTTP status code	Description
InvalidParameter	The specified parameter SourceItem is not valid.	400	The error message returned because the specified value of SourceItem is invalid.
InvalidParameter	The specified protocol is not valid.	400	The error message returned because the specified protocol type is invalid.
InvalidParameter	RS Pool is empty.	400	The error message returned because no backend server is available.
InvalidParameter	RS Pool doesn't exist.	400	The error message returned because no backend server is available.
InvalidParameter	Illegal user ID.	400	The error message returned because the user ID is invalid.
InvalidParameter	User ID is null	400	The error message returned because the user ID is not specified.
InvalidParameter	The specified parameter lb_type is not valid.	400	The error message returned because the specified type of SLB instance is invalid.
InvalidParameter	The specified parameter mode is not valid..	400	The error message returned because the specified value of Mode is invalid.
InvalidParameter	The specified parameter AccessControlStatus is not valid.	400	The error message returned because the specified value of AccessControlStatus is invalid.
InvalidParameter	The specified parameter SourceItems is not valid.	400	The error message returned because the specified value of SourceItem is invalid.
InvalidParameter	The specified parameter BackendServers is not valid.	404	The error message returned because the specified value of BackendServers is invalid.
InvalidParameter	Specified parameter is not valid.	400	The error message returned because a specified parameter is invalid.

Error code	Error message	HTTP status code	Description
InvalidParameter	The specified parameter Domain is not valid.	400	The error message returned because the specified value of Domain is invalid.
InvalidParameter	The specified parameter URI is not valid.	400	The error message returned because the specified value of URI is invalid.
InvalidParameter	The specified parameter Scheduler is not valid.	400	The error message returned because the specified value of Scheduler is invalid.
InvalidParameter	The specified parameter ListenerStatus is not valid.	400	The error message returned because the specified value of ListenerStatus is invalid.
InvalidParameter	The specified parameter PersistenceTimeout is not valid.	400	The error message returned because the specified value of PersistenceTimeout is invalid.
InvalidParameter	The specified parameter ConnectPort is not valid.	400	The error message returned because the specified value of ConnectPort is invalid.
InvalidParameter	The specified parameter ConnectTimeou is not valid.	400	The error message returned because the specified value of ConnectTimeout is invalid.
InvalidParameter	The specified parameter StickySessionType is not valid.	400	The error message returned because the specified value of StickySessionType is invalid.
InvalidParameter	The specified parameter HealthyThreshold is not valid.	400	The error message returned because the specified value of HealthyThreshold is invalid.
InvalidParameter	The specified parameter UnhealthyThreshold is not valid.	400	The error message returned because the specified value of UnhealthyThreshold is invalid.

Error code	Error message	HTTP status code	Description
InvalidParameter	The specified parameter Interval is not valid.	400	The error message returned because the specified value of Interval is invalid.
InvalidParameter	The specified parameter XForwardedFor is not valid.	400	The error message returned because the specified value of XForwardedFor is invalid.
InvalidParameter	The specified parameter IsPublicAddress is not valid.	400	The error message returned because the specified value of IsPublicAddress is invalid.
InvalidRegionId.NotFound	Specified region does not exist.	404	The error message returned because the specified region is invalid.
InvalidServerId.Malformed	A specified server ID is not valid, flush control ip chain fail.	400	The error message returned because the ID of the backend server is invalid.
InvalidServerId.NotFound	The specified server is not found.	400	The error message returned because the specified backend server is invalid.
InvalidWeight.Malformed	A specified weight is not valid.	400	The error message returned because the specified value of weight is invalid.
IpNotAvailable	The specified parameter Address is not valid.	400	The error message returned because the specified value of Address is invalid.
ListenerAlreadyExists	There is already a listener bound to the port on the specified load balancer.	400	The error message returned because the specified listener already exists.
ListenerNotFound	No Listener to the specified port of the Load Balancer.	404	The error message returned because the specified listener is invalid.

Error code	Error message	HTTP status code	Description
MissingParameter	The input parameter Cookie that is mandatory for processing this request is not supplied.	400	The error message returned because the Cookie parameter is not specified.
MissingParameter	The input parameter BackendServerPort that is mandatory for processing this request is not supplied.	400	The error message returned because the BackendServerPort parameter is not specified.
MissingParameter	The input parameter LoadBalancerId that is mandatory for processing this request is not supplied.	400	The error message returned because the LoadBalancerId parameter is not specified.
MissingParameter	The input parameter RegionId that is mandatory for processing this request is not supplied.	400	The error message returned because the RegionId parameter is not specified.
MissingParameter	The combination of some parameters violates the spec.	400	The error message returned because a required parameter is not specified.
MissingParameter	The input parameter OwnerId,OwnerAccount that is mandatory for processing this request is not supplied.	403	The error message returned because OwnerAccount and OwnerId are not specified.
PrivateKeyEncryption	Key has Encrypted .	400	The error message returned because the private key is encrypted.

Error code	Error message	HTTP status code	Description
ProcessingSameRequest	The same request is being processed. Please try later.	400	The error message returned because the same request is being processed. Try again later.
ServerCertificateId.NotFound	Specified ServerCertificateId does not exist.	404	The error message returned because the specified certificate is invalid.
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503	The error message returned because the service is unavailable.
ServiceUnavailable	The specified loadbalancer name has been used.	503	The error message returned because the specified name already exists.
TcpNotSupportForHybridLb	Hybrid type loadbalancer doesn't support TCP type listener.	400	The error message returned because you cannot create TCP listeners.
TooManyBackendServers	The total number of input real servers exceeds max supported number: 20.	400	The error message returned because you cannot add more than 20 backend servers in each call.
TooManyBackendServers	The backend server parameter has too many entries.	400	The error message returned because the number of backend servers exceeds the limit.
UnsupportedOperation	The Loadbalancer doesn't support this function.	400	The error message returned because the specified type of SLB instance does not support the operation.
UnsupportedOperation	The specified action is not supported.	400	The error message returned because you cannot perform the operation.

Error code	Error message	HTTP status code	Description
UnsupportedOperationonfixedprotocalport	The specified port has been assigned one type of protocal, and this protocal doesn't support this operation.	400	The error message returned because the protocol of the specified port does not support the operation.
UnsupportedParameter	The input parameter is not unsupported.	400	The error message returned because a specified parameter is invalid.
VipNotMatchRspool	The vip protocol is not match with Rspool.	400	The error message returned because the protocol type of the listener and the protocol type of the backend server do not match.
VipTooManyListeners	The total number of input listeners exceeds max supported number: 50.	400	The error message returned because you cannot add more than 50 listeners in each call.
InvalidParameter	The specified resource does not exist.	400	The error message returned because the specified resource does not exist.
ServiceUnavailable	The specified loadbalancer is configuring, please retry later.	503	The error message returned because the specified instance is being configured. Try again later.
ServiceUnavailable	Obtain Ip Fail, please make sure the ECS exists and the status is running.	503	The error message returned because the system fails to obtain the IP address. Check whether the specified ECS instance exists and is in the Running state.
ServiceUnavailable	The specified region not support VPC.	503	The error message returned because the specified region does not support VPCs.
InvalidParameter	The specified vpc cloud instance has deleted.	400	The error message returned because the specified VPC is deleted.

15.Virtual Private Cloud (VPC)

15.1. Developer Guide

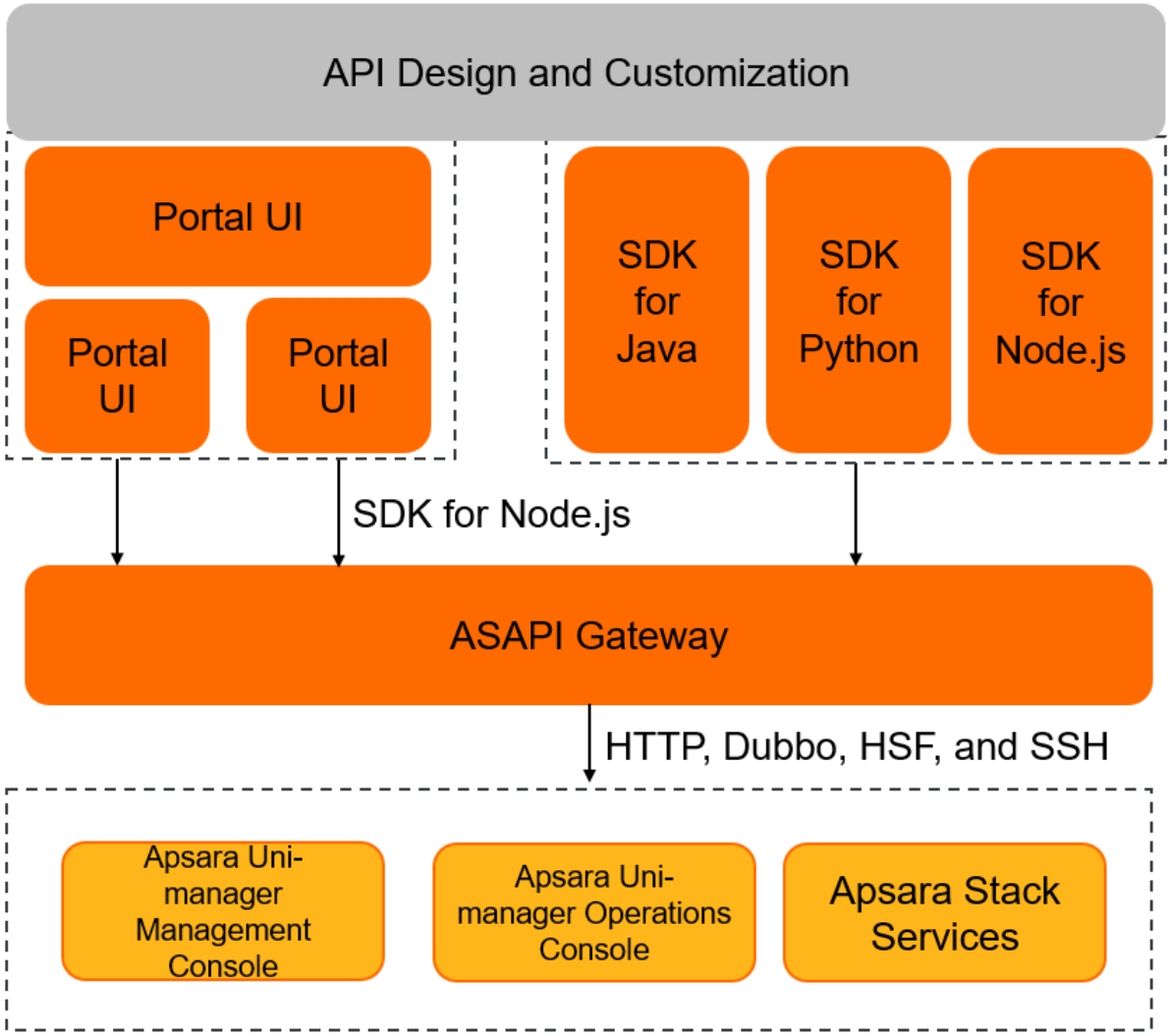
15.1.1. Call VPC SDK by using ASAPI

15.1.1.1. 文档标题缺失，请补全后重新导出

15.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

15.1.1.1.2. Preparations

15.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

15.1.1.1.2.2. View information about API operations

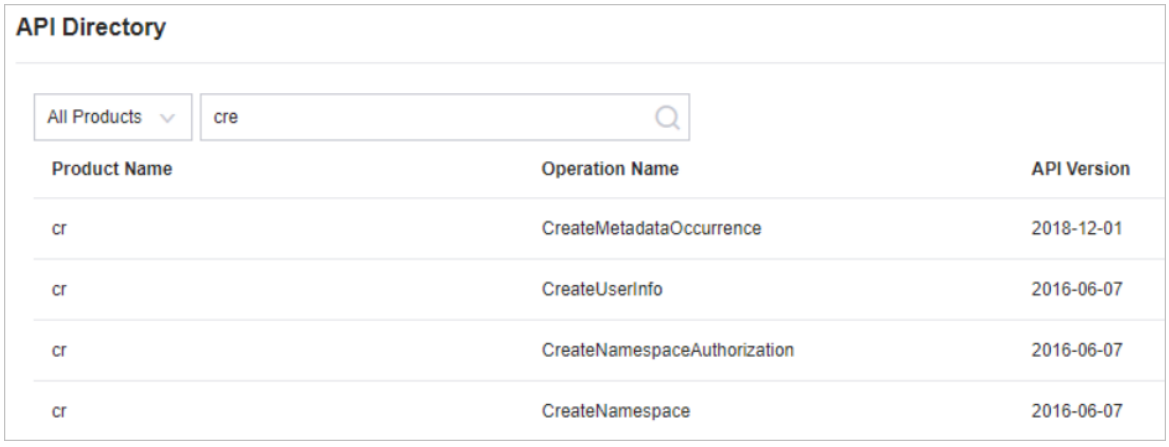
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



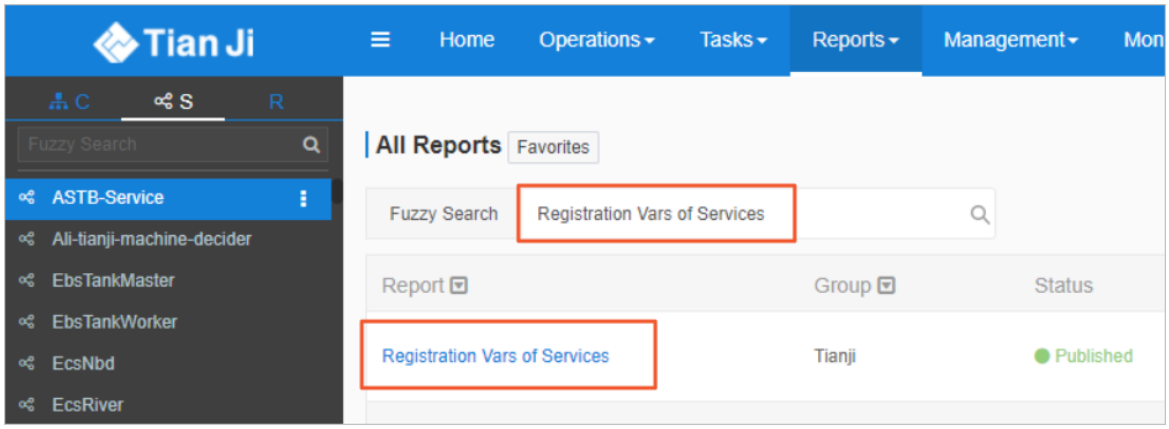
4. Then, you can view the service name, API operation name, and API operation version.

15.1.1.1.2.3. Generate an endpoint for the ASAPI

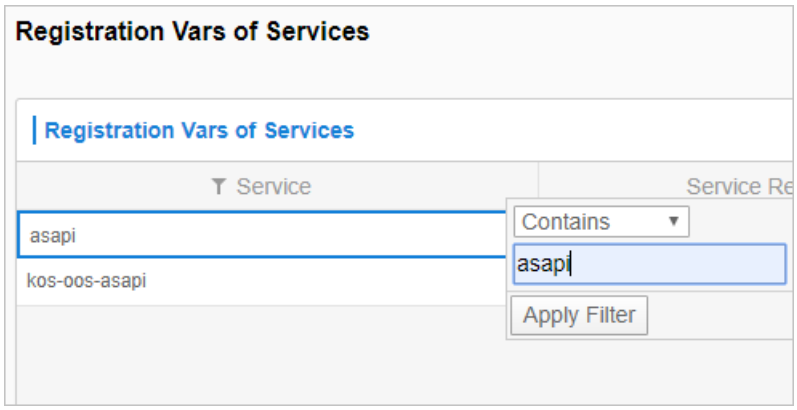
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

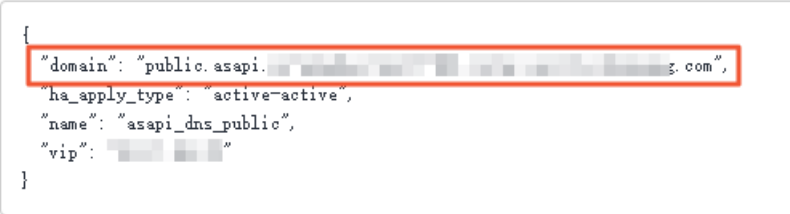
3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.



4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

15.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

15.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

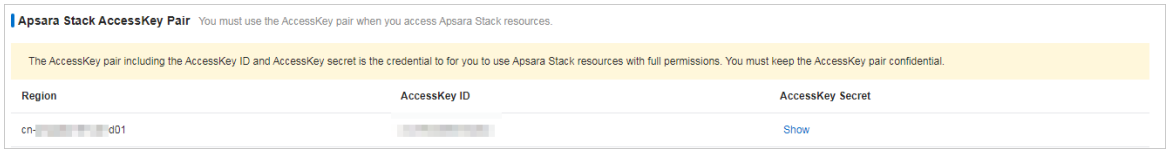
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

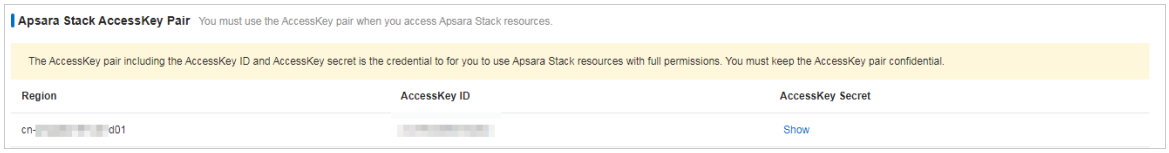
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

15.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



15.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

15.1.1.1.4. SDK description

15.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

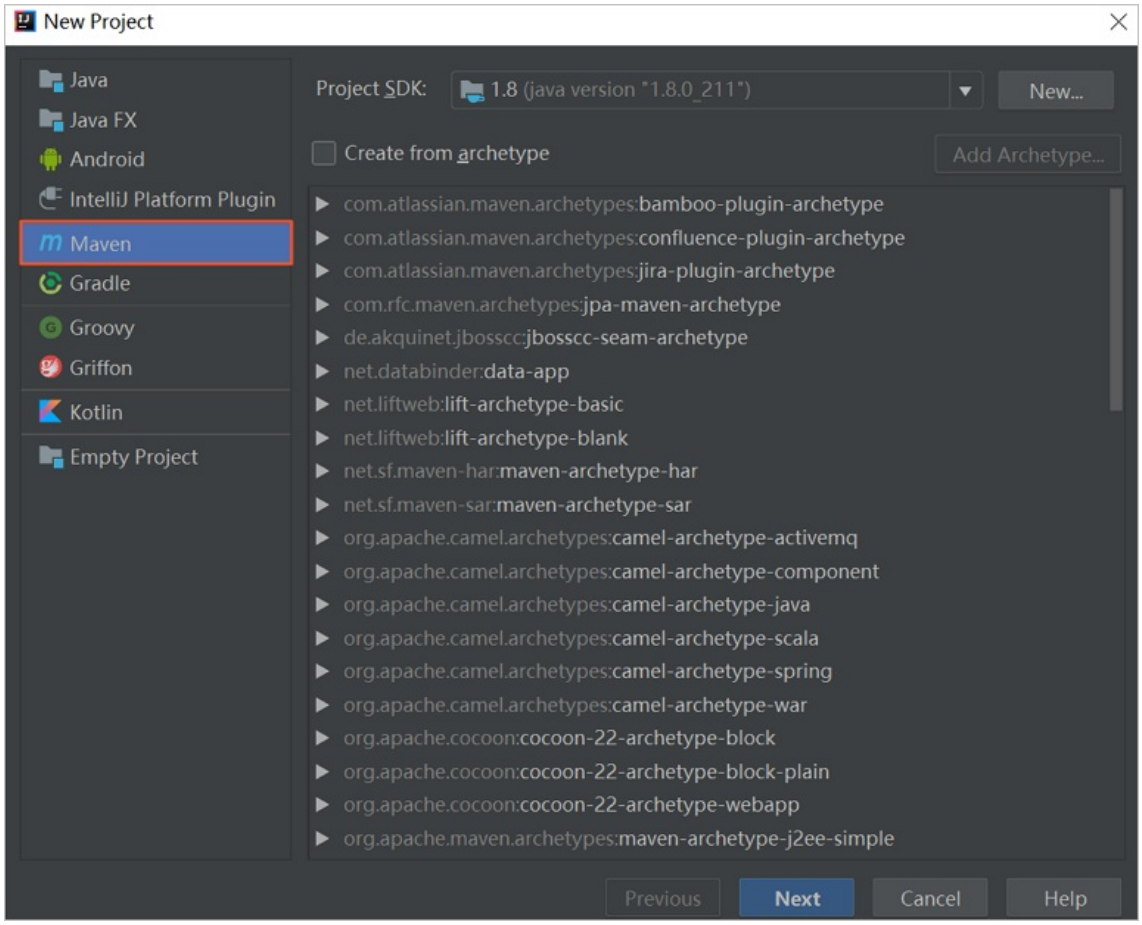
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

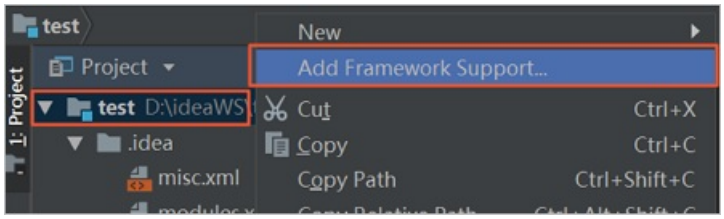
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

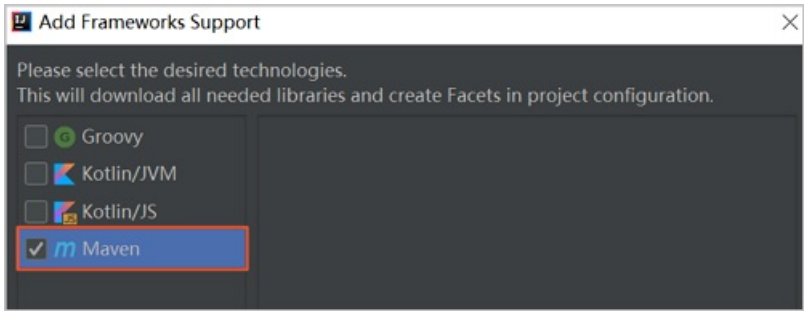
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



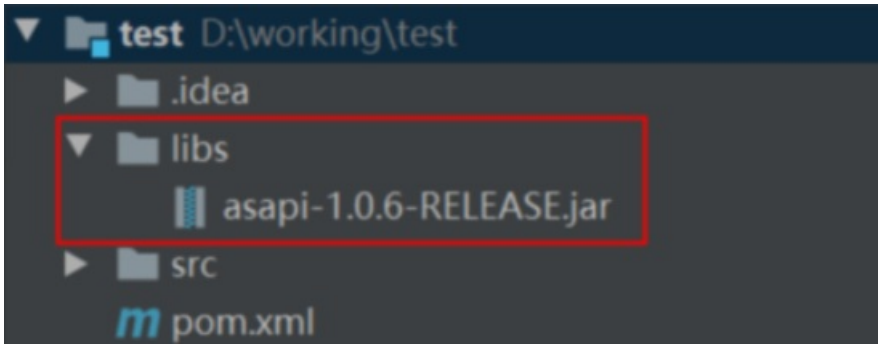
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



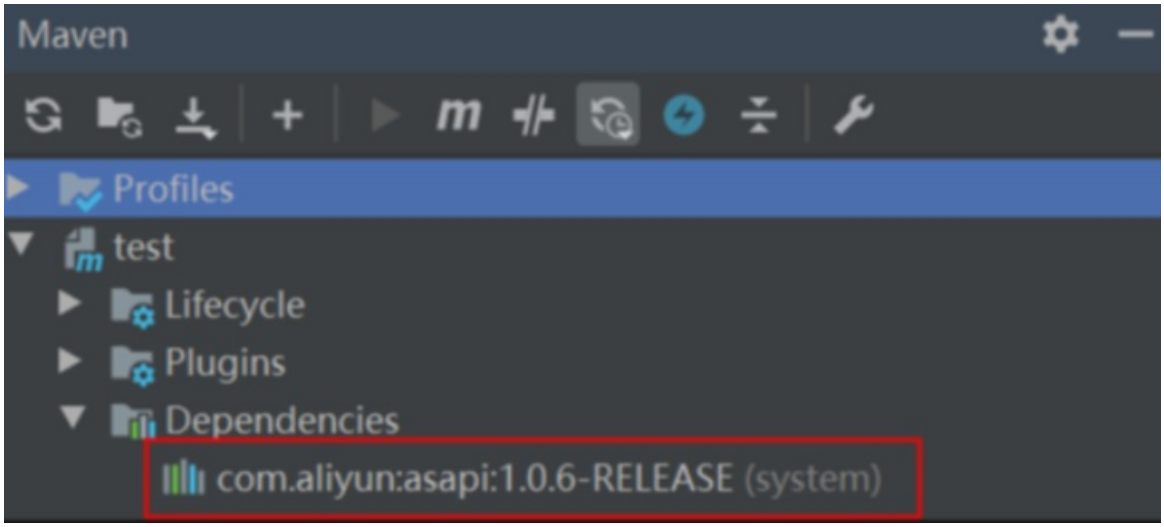
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

15.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

15.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

15.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

15.1.1.1.5. HTTP requests

15.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

15.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

15.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

15.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

15.1.2. API reference

15.1.2.1. API reference

15.1.2.1.1. List of operations by function

The following tables list the API operations available for use in Virtual Private Cloud (VPC).

VPC API

API	Description
CreateVpc	Creates a VPC.
DeleteVpc	Deletes a VPC.
ModifyVpcAttribute	Modifies the name and description of a VPC.
DescribeVpcs	Queries VPCs.
AssociateVpcCidrBlock	Adds a secondary IPv4 CIDR block to a VPC.
UnassociateVpcCidrBlock	Deletes a secondary IPv4 CIDR block from a VPC.

vSwitch API

API	Description
CreateVSwitch	Creates a vSwitch.
DeleteVSwitch	Deletes a vSwitch.
ModifyVSwitchAttribute	Modifies the name and description of a vSwitch.
DescribeVSwitches	Queries vSwitches.

vRouter API

API	Description
ModifyVRouterAttribute	Modifies the name and description of a vRouter.
DescribeVRouters	Queries vRouters in a specified region.

Route table API

API	Description
CreateRouteTable	Creates a custom route table.
CreateRouteEntry	Creates a custom route entry in the vRouter or virtual border router (VBR) of a VPC.
DeleteRouteEntry	Deletes a custom route entry.
DescribeRouteEntryList	Queries route entries.
ModifyRouteEntry	Modifies the name and description of a custom route entry.

API	Description
AssociateRouteTable	Associates a custom route table with a vSwitch in the same VPC.
DeleteRouteTable	Deletes a custom route table.
DescribeRouteTableList	Queries route tables.
UnassociateRouteTable	Disassociates a route table from a vSwitch.

Region API

API	Description
DescribeRegions	Queries available regions.
DescribeZones	Queries zones in a specified region.

Tag API

API	Description
TagResources	Creates and adds tags to a specified resource.
ListTagResources	Queries tags that are added to instances.
UnTagResources	Removes tags from a specified resource.

BGP API

API	Description
DescribeBgpGroups	Queries Border Gateway Protocol (BGP) groups in a specified region.
ModifyBgpGroupAttribute	Modifies configurations of BGP groups.
DeleteBgpGroup	Deletes a specified BGP group.
DescribeBgpPeers	Queries BGP peers in a specified region.
DeleteBgpPeer	Deletes a specified BGP peer.
AddBgpNetwork	Advertises BGP networks.
DeleteBgpNetwork	Deletes advertised BGP networks.
DescribeBgpNetworks	Queries advertised BGP networks.

VBR API

API	Description
CreateVirtualBorderRouter	Creates a VBR.
DeleteVirtualBorderRouter	Deletes a VBR.
DescribeVirtualBorderRouters	Queries VBRs.
TerminateVirtualBorderRouter	Disables a VBR.
RecoverVirtualBorderRouter	Enables a disabled VBR.
UnassociatePhysicalConnectionFromVirtualBorderRouter	Disassociate a VBR from an Express Connect circuit.

Express Connect API

API	Description
CancelPhysicalConnection	Cancels an Express Connect circuit before it is enabled. After you perform this operation, the Express Connect circuit enters the Canceled state.
DescribePhysicalConnections	Queries Express Connect circuits in a specified region.
ModifyPhysicalConnectionAttribute	Modifies the configuration of an Express Connect circuit.
TerminatePhysicalConnection	Disables an Express Connect circuit after it is enabled.
EnablePhysicalConnection	Enables an Express Connect circuit that is in the Confirmed state. After you perform this operation, the Express Connect circuit enters the Enabled state.
DeletePhysicalConnection	Deletes an Express Connect circuit.
CreatePhysicalConnectionOccupancyOrder	Creates an order for resource occupation.
ApplyPhysicalConnectionLOA	Applies for a letter of authorization (LOA).
CreatePhysicalConnectionSetupOrder	Creates an order for initial installation.
CompletePhysicalConnectionLOA	Completes construction.
DescribePhysicalConnectionLOA	Queries LOA information about an Express Connect.

VPN Gateway API

API	Description
CreateVpnGateway	Creates a VPN gateway.

API	Description
DescribeVpnGateways	Queries VPN gateways.
DescribeVpnGateway	Queries detailed information about a specified VPN gateway.
DeleteVpnGateway	Deletes a specified VPN gateway.
ModifyVpnGatewayAttribute	Modifies the name and description of a VPN gateway.
CreateCustomerGateway	Creates a customer gateway.
DescribeCustomerGateways	Queries customer gateways.
DescribeCustomerGateway	Queries details about a customer gateway.
DeleteCustomerGateway	Deletes a specified customer gateway.
ModifyCustomerGatewayAttribute	Modifies the name and description of a customer gateway.
DeleteVpnPbrRouteEntry	Deletes a policy-based route entry of a VPN gateway.
DeleteVpnRouteEntry	Deletes a destination-based route entry of a VPN gateway.
DescribeVpnRouteEntries	Queries destination-based route entries of a VPN gateway.
ModifyVpnRouteEntryWeight	Modifies the weight of a destination-based route entry of a VPN gateway.
CreateVpnRouteEntry	Creates a destination-based route entry for a VPN gateway.
ModifyVpnPbrRouteEntryWeight	Modifies the weight of a policy-based route entry of a VPN gateway.
DescribeVpnPbrRouteEntries	Queries policy-based route entries of a VPN gateway.
PublishVpnRouteEntry	Advertises a route entry of a VPN gateway to a VPC.
CreateVpnPbrRouteEntry	Creates a policy-based route entry for a VPN gateway.
DescribeVpnConnection	Queries details about an IPsec-VPN connection.
DeleteVpnConnection	Deletes a specified IPsec-VPN connection.

API	Description
DownloadVpnConnectionConfig	Queries configuration information about an IPsec-VPN connections.
CreateVpnConnection	Creates an IPsec-VPN connection.
DescribeVpnConnections	Queries IPsec-VPN connections in a specified region.
ModifyVpnConnectionAttribute	Modifies the configuration of an IPsec-VPN connection.
CreateSslVpnServer	Creates an SSL-VPN server.
DeleteSslVpnServer	Deletes an SSL-VPN server.
ModifySslVpnServer	Modifies the configuration of an SSL-VPN server.
DeleteSslVpnClientCert	Deletes an SSL-VPN client certificate.
ModifySslVpnClientCert	Modifies the name of an SSL-VPN client certificate.
CreateSslVpnClientCert	Creates an SSL-VPN client certificate.
DescribeSslVpnClientCerts	Queries SSL-VPN client certificates.
DescribeSslVpnClientCert	Queries details about an SSL-VPN client certificate.
DescribeSslVpnServers	Queries SSL-VPN servers.
DescribeVpnSslServerLogs	Queries the logs of an SSL-VPN server.

NAT Gateway API

API	Description
ModifyNatGatewayAttribute	Modifies the configuration of a NAT gateway.
ModifyNatGatewaySpec	Resizes a NAT gateway.
DeleteNatGateway	Deletes a specified NAT gateway.
CreateForwardEntry	Adds DNAT entries to a DNAT table.
DescribeForwardTableEntries	Queries DNAT entries in a specified DNAT table.
ModifyForwardEntry	Modifies a specified DNAT entry.
DeleteForwardEntry	Deletes a specified DNAT entry.
CreateSnatEntry	Adds SNAT entries to an SNAT table.
DescribeSnatTableEntries	Queries SNAT entries.

API	Description
ModifySnatEntry	Modifies a specified SNAT entry.
DeleteSnatEntry	Deletes a specified SNAT entry.
ModifyBandwidthPackageSpec	Modifies the bandwidth of a NAT service plan.
DeleteBandwidthPackage	Deletes a specified NAT service plan.
CreateBandwidthPackage	Creates a NAT service plan.
DescribeBandwidthPackages	Queries NAT service plans in a specified region.
ModifyBandwidthPackageAttribute	Modifies the name and description of a specified NAT service plan.
AddBandwidthPackageIps	Adds public IP addresses to a NAT service plan.

EIP API

API	Description
AllocateEipAddress	Applies for an elastic IP address (EIP).
AllocateEipAddressPro	Applies for a specified EIP.
AssociateEipAddress	Associates an EIP with a cloud service in the same region.
ModifyEipAddressAttribute	Modifies the name, description, and maximum bandwidth of an EIP.
UnassociateEipAddress	Disassociates an EIP from a cloud resource.
ReleaseEipAddress	Releases a specified EIP.
DescribeEipGatewayInfo	Queries information about the subnet mask and gateway of an EIP.

HAVIP API

API	Description
CreateHaVip	Creates a high-availability virtual IP address (HAVIP).
DescribeHaVips	Queries HAVIPs in a specified region.
ModifyHaVipAttribute	Modifies the description of an HAVIP.
AssociateHaVip	Associates an HAVIP with an Elastic Compute Service (ECS) instance.

API	Description
UnassociateHaVip	Disassociates an HAVIP from an ECS instance.
DeleteHaVip	Deletes an HAVIP.

Network ACL API

API	Description
CreateNetworkAcl	Creates a network access control list (ACL).
AssociateNetworkAcl	Associates a network ACL with a vSwitch.
ModifyNetworkAclAttributes	Modifies the attributes of a network ACL.
UpdateNetworkAclEntries	Updates rules of a network ACL.
UnassociateNetworkAcl	Disassociates a network ACL from a vSwitch.
CopyNetworkAclEntries	Copies rules of a network ACL.
DeleteNetworkAcl	Deletes a network ACL.
DescribeNetworkAcls	Queries network ACLs.
DescribeNetworkAclAttributes	Queries details about a network ACL.

IPv6 Gateway API

API	Description
CreateIpv6Gateway	Creates an IPv6 gateway.
DeleteIpv6Gateway	Deletes an IPv6 gateway.
DescribeIpv6Gateways	Queries IPv6 gateways.
ModifyIpv6GatewaySpec	Modifies the specification of an IPv6 gateway.
DescribeIpv6EgressOnlyRules	Queries egress-only rules.
CreateIpv6EgressOnlyRule	Adds an egress-only rule to an IPv6 address.
DeleteIpv6EgressOnlyRule	Deletes an egress-only rule.
DeleteIpv6InternetBandwidth	Deletes an IPv6 Internet bandwidth plan.
DescribeIpv6GatewayAttribute	Queries detailed information about an IPV6 gateway.
DescribeIpv6Addresses	Queries IPv6 addresses.

API	Description
ModifyIpv6InternetBandwidth	Modifies the Internet bandwidth plan of an IPv6 address.
AllocateIpv6InternetBandwidth	Purchases an Internet bandwidth plan for an IPv6 address.
ModifyIpv6AddressAttribute	Modifies the name and description of an IPv6 address.
ModifyIpv6GatewayAttribute	Modifies the information about an IPv6 gateway.

15.1.2.1.2. Call VPC APIs

15.1.2.1.2.1. Request syntax

To call a Virtual Private Cloud (VPC) API operation, you must send an HTTP GET request to the endpoint of the VPC API. You must add the request parameters that correspond to the API operation being called. After you call the API, the system returns a response. The request and response are encoded in UTF-8.

VPC API operations use the RPC protocol. You can call VPC API operations by sending HTTP GET requests.

The following example shows the syntax of a VPC API request:

```
http://Endpoint/?Action=xx&Parameters
```

where:

- Endpoint: the endpoint of the API. The endpoint of the VPC API is `vpc.example.com`.

  > **Note** `example.com` is a custom domain name. You can obtain the endpoint in the Apsara Uni-manager Operations Console. For more information, see Generate the ASAPI endpoint.

- Action: the operation that you want to perform. For example, to query VPCs, you must set the Action parameter to DescribeVpcs.
- Version: the version of the API that you want to call. The current VPC API version is *2016-04-28*.
- Parameters: the request parameters for the operation. Separate multiple parameters with ampersands (&).

  Request parameters include both common request parameters and operation-specific parameters. Common parameters include the API version and authentication information. For more information about common parameters, see Common parameters.

The following example describes how to call the DescribeVpcs operation.

> **Note** The example in this topic is formatted to improve readability.

```
https://vpc.example.com/?Action=DescribeVpcs
&Format=xml
&Version=2016-04-28
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

15.1.2.1.2.2. API authorization

To ensure the security of your account, we recommend that you call VPC APIs as a RAM user. Before you can use a RAM account to call a VPC API, you must create a RAM account and assign corresponding permissions to it.

For more information about VPC resources and APIs you can assign permissions on, see RAM authentication.

15.1.2.1.2.3. Request signatures

You must sign all API requests to ensure security. Virtual Private Cloud (VPC) uses the request signature to verify the identity of the API caller.

VPC implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Alibaba Cloud accounts and RAM users that is similar to a logon username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential. For more information about how to create an AccessKey pair, see Obtain an AccessKey pair.

You must add the signature to an RPC API request in the following format:

`https://endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=xxxx%xxxx%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`

Take DescribeVpcs as an example. Assume that the AccessKey ID is `testid` and the AccessKey secret is `testsecret`. The original request URL is formatted as the following example:

```
http://vpc.example.com/?Action=DescribeVpcs
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Perform the following operations to calculate the signature:

1. Create a string-to-sign by using the request parameters:

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeVpcs&Format%3DXML&SignatureMethod%3DHMAC-SHA1&SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&SignatureVersion%3D1.0&TimeStamp%3D2016-02-23T12%253A46%253A24Z&Version%3D2014-05-15
```

2. Calculate the HMAC value of the string-to-sign.

   Add an ampersand (&) after the AccessKey secret as the key to calculate the HMAC value. In this example, the key is `testsecret&` .

```
CT9X0VtwR86fNWSnsc6v8YGOjuE=
```

3. Add the signature string to the request as the Signature parameter:

```
http://vpc.example.com/?Action=DescribeVpcs
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
&Signature=xxxx%xxxx%3D
```

15.1.2.1.3. RAM authentication

Before calling a VPC API using a RAM user, you must use an Apsara Stack tenant account to create an authorization policy to assign permissions to the RAM user. In the authorization policy, an Alibaba Cloud Resource Name (ARN) is used as the unique identifier of the resource to authorize.

VPC resources

The following table lists the VPC resources that can be authorized and their corresponding ARN formats.

Resource type	ARN format
Virtual Private Cloud (VPC)	`acs:vpc:$regionid:$accountid:vpc/$vpcid`
	`acs:vpc:$regionid:$accountid:vpc/*`
	`acs:vpc:*:$accountid:vpc/*`
VRouter	`acs:vpc:$regionid:$accountid:vrouter/$vrouterid`
	`acs:vpc:$regionid:$accountid:vrouter/*`
	`acs:vpc:*:$accountid:vrouter/*`
VSwitch	`acs:vpc:$regionid:$accountid:vswitch/$vswitchid`
	`acs:vpc:$regionid:$accountid:vswitch/*`
	`acs:vpc:*:$accountid:vswitch/*`

Resource type	ARN format
Routing table	acs:vpc:$regionid:$accountid:routetable/$routetableid
	acs:vpc:$regionid:$accountid:routetable/*
	acs:vpc:*:$accountid:routetable/*
Elastic IP Address (EIP)	acs:vpc:$regionid:$accountid:eip/$allocationid
	acs:vpc:$regionid:$accountid:eip/*
	acs:vpc:*:$accountid:eip/*
NAT Gateway	acs:vpc:$regionid:$accountid:natgateway/$natgatewayid
	acs:vpc:$regionid:$accountid:natgateway/*
	acs:vpc*:$accountid:vpc/*
NAT Gateway service plan	acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid
	acs:vpc:$regionid:$accountid:bandwidthpackage/*
	aacs:vpc:*:$accountid:vpc/*
Forwarding table	acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid
	acs:vpc:$regionid:$accountid:forwardtable/*
	acs:vpc:*:$accountid:vpc/*
SNAT table	acs:vpc:$regionid:$accountid:snattable/$snattableid
	acs:vpc:$regionid:$accountid:snattable/*
	acs:vpc:*:$accountid:vpc/*
General resource	acs:vpc:$regionid:$accountid:*
	acs:vpc:*:$accountid:*

$regionid/accoutid/vrouterid are IDs of the specific resources, * represents all resources.

VPC API operations

The following table lists the API operations that can be authorized and their corresponding ARN formats.

Operation	ARN format
vpc:CreateVpc	acs:vpc:$regionid:$accountid:vpc/*

Operation	ARN format
vpc:DeleteVpc	`acs:vpc:$regionid:$accountid:vpc/$vpcid`
vpc:DescribeVpcs	`vpc:$regionid:$accountid:vpc/*`
vpc:ModifyVpcAttribute	`acs:vpc:$regionid:$accountid:vpc/$vpcid`

vpc:DescribeVRouters	`acs:vpc:$regionid:$accountid:vrouter/*`
	The VRouter ID is specified:
	`"vpc:Vpc":"acs:vpc:$regionid:$accountid:vpc/$vpcid"`
	The VRouter ID is not specified:
	`"vpc:Vpc":"acs:vpc:$regionid:$accountid:vpc/*"`

vpc:ModifyVRouterAttribute	`acs:vpc:$regionid:$accountid:vrouter/$vrouterid`
vpc:CreateVSwitch	`acs:vpc:$regionid:$accountid:vswitch/*` `acs:vpc:$regionid:$accountid:vpc/$vpcid`
vpc:DeleteVSwitch	`acs:vpc:$regionid:$accountid:vswitch/$vswitchid`
vpc:DescribeVSwitches	`acs:vpc:$regionid:$accountid:vswitch/*` `"vpc:Vpc":"acs:vpc:$regionid:$accountid:vpc/$vpcid"`
vpc:ModifyVSwitchAttribute	`acs:vpc:$regionid:$accountid:vswitch/$vswitchid`
vpc:CreateRouteEntry	`acs:vpc:$regionid:$accountid:routetable/$routetableid`
vpc:DeleteRouteEntry	`acs:vpc:$regionid:$accountid:routetable/$routetableid`
vpc:DescribeRouteTables	`acs:vpc:$regionid:$accountid:routetable/*` `"vpc:VRouter":"acs:vpc$regionid:$accountid:vrouter/$vrouterid"`
vpc:AllocateEipAddress	`acs:vpc:$regionid:$accountid:eip/*`

vpc:AssociateEipAddres	`acs:vpc:$regionid:$accountid:eip/*`
	Bind an ECS instance
	`acs:vpc:$regionid:$accountid:eip/$allocationid`
	`acs:ecs:$regionid:$accountid:instance/$instanceid`

vpc:DescribeEipAddresses	`acs:vpc:$regionid:$accountid:eip/*`

Operation	ARN format

vpc:UnassociateEipAddress	Bind an ECS instance
	`acs:vpc:$regionid:$accountid:eip/$allocationid`
	`acs:ecs:$regionid:$accountid:instance/$instanceid`

vpc:ReleaseEipAddress	`acs:vpc:$regionid:$accountid:eip/$allocationid`
vpc:DescribeEipMonitorData	`acs:vpc:$regionid:$accountid:eip/$allocationid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
vpc:CreateNatGateway	`acs:vpc:$regionid:$accountid:natgateway/*`
vpc:DescribeNatGateways	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:vpc:$regionid:$accountid:natgateway/*`
vpc:ModifyNatGatewaySpec	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid`
vpc:ModifyNatGatewayAttribute	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
vpc:DeleteNatGateway	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
vpc:CreateBandwidthPackage	`acs:vpc:$regionid:$accountid:bandwidthpackage/*`
vpc:DescribeBandwidthPackages	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid` `acs:vpc:$regionid:$accountid:bandwidthpackage/*`
vpc:ModifyBandwidthPackageSpec	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
vpc:ModifyBandwidthPackageAttribute	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
vpc:AddBandwidthPackageIps	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
vpc:RemoveBandwidthPackageIps	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
vpc:DeleteBandwidthPackage	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`

Operation	ARN format
vpc:CreateForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
vpc:DeleteForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
vpc:ModifyForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
vpc:DescribeForwardTableEntries	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
vpc:CreateSnatEntry	`acs:vpc:$regionid:$accountid:snattable/*`
vpc:ModifySnatEntry	`acs:vpc:$regionid:$accountid:snattable/$snattableid`
vpc:DescribeSnatTableEntries	`acs:vpc:$regionid:$accountid:snattable/$snattableid`
vpc:DeleteSnatEntry	`acs:vpc:$regionid:$accountid:snattable/$snattableid`

15.1.2.1.4. Common parameters

Common request parameters

Common request parameters are request parameters that you must use when you call each API.

Common request parameters

Name	Type	Required	Description
Format	String	No	The format of the response. Valid values: *JSON (default) | XML*
Version	String	Yes	The API version in the format of `YYYY-MM-DD`. Valid value: *2016-04-28*
AccessKeyId	String	Yes	The AccessKey ID that you use to call an API.
Signature	String	Yes	The signature result string.
SignatureMethod	String	Yes	The algorithm used to create the request signature. Valid value: *HMAC-SHA1*

Name	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. The timestamp uses UTC and it complies with the ISO 8601 standard. Its format is `YYYY-MM-DDThh:mm:ssZ`. For example, 20:00:00 on January 10, 2013 in China Standard Time (UTC +8) is written as 2013-01-10T12:00:00Z.
SignatureVersion	String	Yes	The version of the signature algorithm. Valid value: 1.0
SignatureNonce	String	Yes	A unique random number that is used to prevent network replay attacks. You must use different random numbers for different requests.

Example

```
http://vpc.example.com/?Action=DescribeVpcs
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Common response parameters

API responses use a unified format. 2xx HTTP status codes indicate a successful invocation. 4xx or 5xx HTTP status codes indicate a failed invocation. The responses can be returned in JSON or XML format. The XML format is used by default. You can specify the format when calling an API.

Each time you send a request to call an API, the system returns a unique identifier RequestId, regardless of whether the invocation is successful or not.

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
      <!—Result root node-->
      <API name+Response>
      <!—Returned request tag-->
      <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
      <!—Returned results-->
      </API name+Response>
```

- JSON format

```
{
      "RequestId":"4C467B38-3910-447D-87BC-AC049166F216",
      /*Returned results*/
  }
```

15.1.2.1.5. VPC

15.1.2.1.5.1. CreateVpc

Deletes a virtual private cloud (VPC).

Descriptions

When you call this operation, take note of the following rules:

- You can specify only one CIDR block for a VPC. The CIDR block must be 172.16.0.0/16, 192.168.0.0/16, or their subnets, and the subnet mask must be 8 to 24 bits in length. The default CIDR block is 192.168.0.0/16.
- After you create a VPC, you cannot modify its CIDR block.
- In each VPC, cloud services can use a maximum of 60,000 private IP addresses. You cannot increase the quota.
- After you create a VPC, a vRouter and a route table are automatically created.
- At most three customer-side CIDR blocks can be added to a VPC. If a user CIDR block includes another user CIDR block, the one with the shorter subnet mask takes effect. For example, if 192.168.0.0/16 and 192.168.0.0/24 are specified, only 192.168.0.0/16 takes effect.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpc	The operation that you want to perform. Set the value to **CreateVpc**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the VPC belongs. You can call the `DescribeRegions` operation to query the most recent region list.
CidrBlock	String	No	172.16.0.0/16	The CIDR block of the VPC. You can use one of the following CIDR blocks or their subnets as the CIDR block of your VPC: • **172.16.0.0/16**. • **192.168.0.0/16** (default).
Ipv6CidrBlock	String	No	1007:XXXX:0:40::/56	The IPv6 CIDR block of the VPC.

Parameter	Type	Required	Example	Description
EnableIpv6	Boolean	No	false	Specifies whether to enable the IPv6 CIDR block. Valid values: • **false** (default): disables the IPv6 CIDR block. • **true**: enables the IPv6 CIDR block.
VpcName	String	No	abc	The name of the VPC. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
Description	String	No	This is my first Vpc.	The description of the VPC. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.
ResourceGroupId	String	No	rg-acfmxazb4ph6aiy****	The ID of the resource group.
DryRun	Boolean	No	false	Specifies whether to precheck this request. Valid values: • **true**: sends a check request without creating a VPC. The system checks the required parameters, request format and service limits. An error message is returned if the request fails the precheck. If the request passes the precheck, the `DryRunOperation` error code is returned. • **false**: sends the request. This is the default value. If the request passes the precheck, a 2XX HTTP status code is returned and the a VPC is created.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.
UserCidr	String	No	189.XX.XX.0/12	The user CIDR block. Separate multiple CIDR blocks with commas (,). At most three CIDR blocks are supported.

Response parameters

Parameter	Type	Example	Description
VpcId	String	vpc-bp15zckdt37pq72zv****	The ID of the created VPC.
VRouterId	String	vrt-bp1lhl0taikrteen8****	The ID of the vRouter that is automatically created by the system after the VPC is created.
RouteTableId	String	vtb-bp145q7glnuzdv****	The ID of the route table that is automatically created by the system after the VPC is created.
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.
ResourceGroupId	String	rg-acfmxazb4ph6aiy****	The ID of the resource group to which the EIP belongs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpc
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpcResponse>
      <ResourceGroupId>rg-acfmxazb4ph****</ResourceGroupId>
      <RequestId>8B2F5262-6B57-43F2-97C4-971425462DFE</RequestId>
      <RouteTableId>vtb-bp1krxxzp0c2****</RouteTableId>
      <VRouterId>vrt-bp1jcg5cmxjbl9xgc****</VRouterId>
      <VpcId>vpc-bp1qpo0kug3a20qqe****</VpcId>
</CreateVpcResponse>
```

`JSON` format

```
{
    "CreateVpcResponse": {
        "ResourceGroupId": "rg-acfmxazb4ph****",
        "RequestId": "8B2F5262-6B57-43F2-97C4-971425462DFE",
        "RouteTableId": "vtb-bp1krxxzp0c2****",
        "VRouterId": "vrt-bp1jcg5cmxjbl9xgc****",
        "VpcId": "vpc-bp1qpo0kug3a20qqe****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.
400	InvalidParameter	Specified CIDR block is not valid	The error message returned because the specified CIDR block is invalid.
400	ResourceNotAvailable	Resource you requested is not available in this region or zone.	The error message returned because you cannot create a vSwitch in the current region or zone.
400	InvalidVpcName.Malformed	Specified VPC name is not valid.	The error message returned because the format of the VPC name is invalid. Enter a valid VPC name and try again.
400	InvalidVpcDiscription.Malformed	Specified VPC description is not valid.	The error message returned because the format of the VPC description is invalid.
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the permissions and try again.

HttpCode	Error code	Error message	Description
400	QuotaExceeded.Vpc	VPC quota exceeded.	The error message returned because the number of VPCs that belong to the Apsara Stack tenant account has reached the upper limit. You can submit a ticket to request a quota increase.
400	ResourceNotAvailable.Vpc	Resource you requested is not available in this region or zone.	The error message returned because the resource you requested is not available in this region or zone.
400	InvalidParameter	Specified UserCidr invalid format.	The error message returned because the format of the user CIDR block is invalid.
400	InvalidParameter	Specified UserCidr Subnet mask is not valid .	The error message returned because the subnet mask of the user CIDR block is invalid.
400	InvalidUserCidr.Quota	Specified UserCidr number is greater than 3.	The error message returned because the UserCidr value has reached the upper limit.
400	InvalidUserCidr.Malformed	Specified UserCidr overlapping in of 100.64.0.0/10.	The error message returned because the UserCidr value overlaps with 100.64.0.0/10.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	InvalidResourceGroupId	The specified ResourceGroupId does not exist.	The error message returned because the specified resource group ID is invalid.
400	OperationUnsupported.ResourceGroupId	ResourceGroup is not supported in this region.	The error message returned because the resource group feature is not enabled.

15.1.2.1.5.2. DeleteVpc

Deletes a virtual private cloud (VPC).

Descriptions

When you call this operation, take note of the following limits:

- Before you delete a VPC, make sure that you have released or removed all resources deployed in the VPC, such as vSwitches, instances, and high-availability virtual IP addresses (HAVIPs).
- You can delete only a VPC that is in the **Available** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpc	The operation that you want to perform. Set the value to **DeleteVpc**.
VpcId	String	Yes	vpc-bp1m7v25emi1h5mtc****	The ID of the VPC that you want to delete.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the VPC is deployed.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpc
&VpcId=vpc-bp1m7v25emi1h5mtc****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpcResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteVpcResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	OperationDenied	The operation is not supported in this status.	The error message returned because the state of the VPC is invalid and the operation cannot be performed.
403	OperationDenied	The snapshot creation for the specified disk is not finished yet.	The error message returned because the snapshot of the specified disk is being created.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.
400	DependencyViolation.RouteEntry	Specified object has dependent resources	The error message returned because custom route entries exist in the VPC and the VPC cannot be deleted.
400	DependencyViolation.Instance	Specified object has dependent resources	The error message returned because the VPC is associated with a resource.
400	DependencyViolation.VSwitch	Specified object has dependent resources	The error message returned because vSwitches exist in the VPC and the VPC cannot be deleted. Delete the vSwitches and try again.
400	DependencyViolation.SecurityGroup	Specified object has dependent resources	The error message returned because security groups exist in the VPC and the VPC cannot be deleted. Delete the security groups and try again.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.
400	DependencyViolation.RouteInterface	Specified object has dependent route interface .	The error message returned because the vSwitch is associated with a router interface and cannot be deleted.
400	DependencyViolation.Tunnel	Specified object has dependent tunnel.	The error message returned because the VPC is associated with a tunnel.

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	DependencyViolation.NatGateway	Specified object has dependent resources NatGateway.	The error message returned because NAT gateways exist in the VPC and the VPC cannot be deleted. Delete the NAT gateways and try again.
400	DependencyViolation.RouterInterface	Specified object has dependent resources RouterInterface.	The error message returned because the VPC is associated with a router interface.
400	DependencyViolation.SecurityGroup	Specified object has dependent resources SecurityGroup.	The error message returned because security groups exist in the VPC and the VPC cannot be deleted. Delete the security groups and try again.
400	Forbidden.VpcNotFound	Specified VPC can not found.	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	Forbbiden	Active custom route in vpc.	The error message returned because you must add a custom route entry to the VPC.
400	DependencyViolation.DhcpOptionsSet	The VPC cannot be deleted when it is associated with dhcpOptionsSet.	The error message returned because DHCP options sets exist in the VPC and the VPC cannot be deleted. Delete the DHCP options sets and try again.

15.1.2.1.5.3. ModifyVpcAttribute

Modifies the name and description of a virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpcAttribute	The operation that you want to perform. Set the value to **ModifyVpcAttribute**.
VpcId	String	Yes	vpc-bp1qtbach57ywecf****	The ID of the VPC that you want to modify.

Parameter	Type	Required	Example	Description
Description	String	No	This is my VPC.	The description of the VPC. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.
VpcName	String	No	Vpc-1	The new name of the VPC. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
CidrBlock	String	No	192.XX.XX.0/24	The IPv4 CIDR block of the VPC. The CIDR block can be 172.16.0.0/16, 192.168.0.0/16, and one of their subnets. The subnet mask must be 8 to 24 bits in length.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the VPC is deployed. You can call the `DescribeRegions` operation to the most recent region list.
EnableIPv6	Boolean	No	true	Specifies whether to enable IPv6 CIDR blocks. Valid values: • **true**: enables IPv6 CIDR blocks. • **false**: disables IPv6 CIDR blocks.
Ipv6CidrBlock	String	No	1007:XXXX:0:40::/61	Specifies whether to enable IPv6 CIDR blocks. Valid values: • **true**: enables IPv6 CIDR blocks. • **false**: disables IPv6 CIDR blocks.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpcAttribute
&VpcId=vpc-bp1qtbach57ywecf****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpcAttributeResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</ModifyVpcAttributeResponse>
```

`JSON` format

```
{
    "ModifyVpcAttributeResponse": {
        "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.
400	InvalidVpcName.Malformed	Specified VPC name is not valid.	The error message returned because the format of the VPC name is invalid. Enter a valid VPC name and try again.
400	InvalidVpcDiscription.Malformed	Specified VPC description is not valid.	The error message returned because the format of the VPC description is invalid.
400	InvalidParameter	Specified UserCidr invalid format.	The error message returned because the format of the user CIDR block is invalid.
400	InvalidParameter	Specified UserCidr Subnet mask is not valid .	The error message returned because the subnet mask of the user CIDR block is invalid.
400	InvalidUserCidr.Quota	Specified UserCidr number is greater than 3.	The error message returned because the UserCidr value has reached the upper limit.

HttpCode	Error code	Error message	Description
400	InvalidUserCidr.Malformed	Specified UserCidr overlapping in of 100.64.0.0/10.	The error message returned because the UserCidr value overlaps with 100.64.0.0/10.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.
400	InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	The error message returned because the format of the specified CIDR block is invalid.

15.1.2.1.5.4. DescribeVpcAttribute

Queries detailed information about a virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpcAttribute	The operation that you want to perform. Set the value to **DescribeVpcAttribute**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the VPC is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
VpcId	String	Yes	vpc-bp18sth14qii3pnv****	The ID of the VPC that you want to query.

Parameter	Type	Required	Example	Description
DryRun	Boolean	No	false	Specifies whether to precheck the request. • **true**: prechecks the API request. Resources are not queried. The system checks whether your AccessKey pair is valid, whether the RAM user is authorized, and whether required parameters are set. If the request fails the precheck, the corresponding error message is returned. If the request passes the precheck, the `DryRunOperation` error code is returned. • **false**: sends the request. This is the default value. If the request passes the precheck, a 2XX HTTP status code is returned and the resource is queried.
IsDefault	Boolean	No	false	Specifies whether the VPC is the default one. Valid values: • **false**: no • **true** (default): yes

Response parameters

Parameter	Type	Example	Description
AssociatedCens	Array of AssociatedCen		The list of Cloud Enterprise Network (CEN) instances that are associated with the VPC. If the VPC is not associated with a CEN instance, no value is returned.
AssociatedCen			
CenId	String	cen-7qthudw0ll6jmc****	The ID of the CEN instance that is associated with the VPC.
CenOwnerId	Long	111111111111	The ID of the Apsara Stack tenant account to which the CEN instance belongs.
CenStatus	String	Attached	The state of the associated CEN instance. **Attached** is returned only when the VPC is associated with a CEN instance.

Parameter	Type	Example	Description
CidrBlock	String	192.168.0.0/16	The IPv4 CIDR block of the VPC.
ClassicLinkEnabled	Boolean	false	Indicates whether the ClassicLink feature is enabled. Valid values: • **true**: enabled • **false**: disabled
CloudResources	Array of CloudResourceSetType		The list of resources deployed in the VPC.
CloudResourceSetType			
ResourceCount	Integer	1	The number of resources deployed in the VPC.
ResourceType	String	VSwitch	The type of resources deployed in the VPC. Valid values: • **VSwitch**: vSwitches • **VRouter**: vRouters • **RouteTable**: route tables
CreationTime	String	2018-10-16T07:31:09Z	The time when the VPC was created.
Description	String	VPC	The description of the VPC.
DhcpOptionsSetId	String	dopt-o6w0df4epg9zo8isy****	The ID of the DHCP options set.
DhcpOptionsSetStatus	String	Available	The state of the DHCP options set. Valid values: • **Available**: The DHCP options set is available for use. • **InUse**: The DHCP options set is being used. • **Deleted**:The DHCP options set is deleted. • **Pending**: The DHCP options set is being configured.
Ipv6CidrBlock	String	2408:XXXX:0:a600::/56	The IPv6 CIDR block of the VPC.

Parameter	Type	Example	Description
IsDefault	Boolean	false	Indicates whether the VPC is the default one. Valid values: • **true**: The VPC is the default one. • **false**: The VPC is not the default one.
OwnerId	Long	3253532535	The ID of the owner.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the VPC is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
RequestId	String	7486AE4A-129D-43DB-A714-2432C074BA04	The ID of the request.
ResourceGroupId	String	rg-acfmxazbvgb4ph****	The ID of the resource group to which the EIPs belong.
SecondaryCidrBlocks	List	192.168.20.0/24	The IPv4 CIDR block of the VPC.
Status	String	Available	The state of the VPC. Valid values: • **Available**: The VPC is available. • **Pending**: The VPC is being configured.
UserCidrs	List	172.16.0.1/24	The user CIDR block. Separate multiple CIDR blocks with commas (,). You can specify at most three CIDR blocks.
VRouterId	String	vrt-bp1jso6ng1at0ajsc****	The ID of the vRouter that belongs to the VPC.
VSwitchIds	List	vsw-bp1nhbnpv2blyz8dl****	The list of vSwitches deployed in the VPC.
VpcId	String	vpc-bp18sth14qii3pnvo****	The ID of the VPC.
VpcName	String	doctest2	The name of the VPC.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpcAttribute
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-bp18sth14qii3pnv****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpcAttributeResponse>
      <VpcName>doctest2</VpcName>
      <Description></Description>
      <IsDefault>false</IsDefault>
      <ResourceGroupId>rg-acfmxazb4ph****</ResourceGroupId>
      <UserCidrs></UserCidrs>
      <ClassicLinkEnabled>false</ClassicLinkEnabled>
      <AssociatedCens>
            <AssociatedCen>
                  <CenStatus>Attached</CenStatus>
                  <CenOwnerId>12315790855****</CenOwnerId>
                  <CenId>cen-7qthudw0ll6jmc****</CenId>
            </AssociatedCen>
      </AssociatedCens>
      <VRouterId>vrt-bp1jso6ng1at0ajs****</VRouterId>
      <VpcId>vpc-bp18sth14qii3pnvo****</VpcId>
      <CreationTime>2018-10-16T07:31:09Z</CreationTime>
      <CidrBlock>192.168.0.0/16</CidrBlock>
      <Status>Available</Status>
      <VSwitchIds>
            <VSwitchId>vsw-bp14cagpfysr29fe****</VSwitchId>
      </VSwitchIds>
      <RequestId>7486AE4A-129D-43DB-A714-2432C074BA04</RequestId>
      <RegionId>cn-hangzhou</RegionId>
      <CloudResources>
            <CloudResourceSetType>
                  <ResourceType>VSwitch</ResourceType>
                  <ResourceCount>1</ResourceCount>
            </CloudResourceSetType>
            <CloudResourceSetType>
                  <ResourceType>VRouter</ResourceType>
                  <ResourceCount>1</ResourceCount>
            </CloudResourceSetType>
            <CloudResourceSetType>
                  <ResourceType>RouteTable</ResourceType>
                  <ResourceCount>1</ResourceCount>
            </CloudResourceSetType>
      </CloudResources>
</DescribeVpcAttributeResponse>
```

`JSON` format


```
{
    "DescribeVpcAttributeResponse": {
        "VpcName": "doctest2",
        "Description": "",
        "IsDefault": false,
        "ResourceGroupId": "rg-acfmxazb4ph****",
        "UserCidrs": "",
        "ClassicLinkEnabled": false,
        "AssociatedCens": {
            "AssociatedCen": {
                "CenStatus": "Attached",
                "CenOwnerId": "12315790855****",
                "CenId": "cen-7qthudw0ll6jmc****"
            }
        },
        "VRouterId": "vrt-bp1jso6ng1at0ajs****",
        "VpcId": "vpc-bp18sth14qii3pnvo****",
        "CreationTime": "2018-10-16T07:31:09Z",
        "CidrBlock": "192.168.0.0/16",
        "Status": "Available",
        "VSwitchIds": {
            "VSwitchId": "vsw-bp14cagpfysr29fe****"
        },
        "RequestId": "7486AE4A-129D-43DB-A714-2432C074BA04",
        "RegionId": "cn-hangzhou",
        "CloudResources": {
            "CloudResourceSetType": [
                {
                    "ResourceType": "VSwitch",
                    "ResourceCount": 1
                },
                {
                    "ResourceType": "VRouter",
                    "ResourceCount": 1
                },
                {
                    "ResourceType": "RouteTable",
                    "ResourceCount": 1
                }
            ]
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.

15.1.2.1.5.5. AssociateVpcCidrBlock

Adds a secondary IPv4 CIDR block to a virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateVpcCidrBlock	The operation that you want to perform. Set the value to **AssociateVpcCidrBlock**.
RegionId	String	Yes	ch-qingdao-env17-d01	The ID of the region where the VPC is deployed. You can call the `DescribeRegions` operation to the most recent region list.
VpcId	String	Yes	vpc-o6wrloqsdqc9io3mg****	The ID of the VPC to which you want to add a secondary IPv4 CIDR block.

Parameter	Type	Required	Example	Description
SecondaryCidrBlock	String	No	192.168.0.0/16	The secondary IPv4 CIDR block. You can specify one of the following standard IPv4 CIDR blocks or their subnets as the secondary IPv4 CIDR block: 192.168.0.0/16, 172.16.0.0/12, and 10.0.0.0/8. To use a public CIDR block as the secondary IPv4 CIDR block, submit a ticket. When you add a secondary IPv4 CIDR block, take note of the following rules: • The CIDR block cannot start with 0. The subnet mask must be 8 to 24 bits in length. • The secondary CIDR block cannot overlap with the primary CIDR block or an existing secondary CIDR block.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C1221A1F-2ACD-4592-8F27-474E02883159	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateVpcCidrBlock
&RegionId=ch-qingdao-env17-d01
&VpcId=vpc-o6wrloqsdqc9io3mg****
&<Common request parameters>
```

Sample success response

`XML` format

```
<AssociateVpcCidrBlockResponse>
        <RequestId>C1221A1F-2ACD-4592-8F27-474E02883159</RequestId>
</AssociateVpcCidrBlockResponse>
```

`JSON` format

```
{
 "RequestId":"C1221A1F-2ACD-4592-8F27-474E02883159"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	The error message returned because the format of the specified CIDR block is invalid.
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the permissions and try again.
400	MissingParam.SecondaryCidrBlockOrIpv6CidrBlock	Either SecondaryCidrBlock or Ipv6CidrBlock must be specified.	The error message returned because the secondary IPv4 CIDR block or the IPv6 CIDR block is not set.
400	MissingParam.VpcId	You must specify VpcId.	The error message returned because VpcId is not set.

15.1.2.1.5.6. UnassociateVpcCidrBlock

Deletes a secondary IPv4 CIDR block from a virtual private cloud (VPC).

Descriptions

Before you delete a secondary IPv4 CIDR block from a VPC, delete the vSwitch which is created with the IPv4 CIDR block. For more information, see `DeleteVSwitch`.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateVpcCidrBlock	The operation that you want to perform. Set the value to **UnassociateVpcCidrBlock**.
RegionId	String	Yes	ch-qingdao-env17-d01	The ID of the region to which the secondary IPv4 CIDR block to be deleted belongs. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
VpcId	String	Yes	vpc-o6wrloqsdqc9io3mg****	The ID of the VPC from which you want to delete a secondary IPv4 CIDR block.
SecondaryCidrBlock	String	No	192.XX.XX.0/16	The secondary IPv4 CIDR block.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C1221A1F-2ACD-4592-8F27-474E02883159	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateVpcCidrBlock
&RegionId=ch-qingdao-env17-d01
&VpcId=vpc-o6wrloqsdqc9io3mg****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociateVpcCidrBlockResponse>
        <RequestId>C1221A1F-2ACD-4592-8F27-474E02883159</RequestId>
</UnassociateVpcCidrBlockResponse>
```

`JSON` format

```
{
 "RequestId":"C1221A1F-2ACD-4592-8F27-474E02883159"
}
```

15.1.2.1.6. vSwitch

15.1.2.1.6.1. CreateVSwitch

Creates a vSwitch.

Descriptions

When you call this operation, take note of the following limits:

- You can create at most 24 vSwitches in a virtual private cloud (VPC).

- The first IP address and last three IP addresses of each vSwitch CIDR block are reserved. For example, if the CIDR block of a vSwitch is 192.168.1.0/24, the IP addresses 192.168.1.0, 192.168.1.253, 192.168.1.254, and 192.168.1.255 are reserved.
- The number of instances in a vSwitch cannot exceed the remaining capacity of the VPC. The remaining capacity is the difference between 15,000 and the current number of instances.
- Each instance can belong to only one vSwitch.
- vSwitches do not support multicasting or broadcasting.
- After you create a vSwitch, you cannot modify its CIDR block.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVSwitch	The operation that you want to perform. Set the value to **CreateVSwitch**.
CidrBlock	String	Yes	172.XX.XX.0/24	The CIDR block of the vSwitch. Take note of the following limits: • The subnet mask must be 16 to 29 bits in length. • The CIDR block of the vSwitch must fall within the range of the CIDR block of the VPC to which the vSwitch belongs. • The CIDR block of a vSwitch cannot be the same as the destination CIDR block in a route entry of the VPC. However, it can be a subset of the destination CIDR block.
VpcId	String	Yes	vpc-257gqcdfvx6n****	The ID of the VPC where you want to create the vSwitch.
ZoneId	String	Yes	cn-qingdao-env-amtest11001-a	The ID of the zone where you want to create the vSwitch. You can call the `DescribeZones` operation to query the most recent zone list.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to create the vSwitch. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
Ipv6CidrBlock	Integer	No	12	The last eight bits of the IPv6 CIDR block of the vSwitch. Valid values: **0** to **255**.
Description	String	No	This is my vswitch.	The description of the vSwitch. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.
VSwitchName	String	No	VSwitch-1	The name of the vSwitch. The name must be 2 to 128 characters in length and must start with a letter. The description cannot start with `http://` or `https://`.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. **ClientToken** can contain only ASCII characters. It must be 1 to 64 characters in length.
IsCgw	Boolean	No	true	Specifies whether the gateway is a customer gateway. Valid values: • **true**: yes • **false**: no

Response parameters

Parameter	Type	Example	Description
VSwitchId	String	vsw-25navfgbue4g****	The ID of the vSwitch.
RequestId	String	861E6630-AEC0-4B2D-B214-6CB5E44B7F04	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVSwitch
&CidrBlock=172.XX.XX.0/24
&VpcId=vpc-257gqcdfvx6n****
&ZoneId=cn-qingdao-env-amtest11001-a
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVSwitchResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
      <VSwitchId>vsw-25naue4cdvf****</VSwitchId>
</CreateVSwitchResponse>
```

`JSON` format

```
{
    "CreateVSwitchResponse": {
        "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0",
        "VSwitchId": "vsw-25naue4cdvf****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidZoneId.NotFound	Specified zone does not exist.	The error message returned because the ID of the zone is invalid.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.
400	InvalidVSwitchName.Malformed	Specified virtual switch name is not valid.	The error message returned because the format of the vSwitch name is invalid.
400	InvalidVSwitchDiscription.Malformed	Specified virtual switch description is not valid.	The error message returned because the description of the vSwitch is invalid.
400	ResourceNotAvailable	Resource you requested is not available in this region or zone.	The error message returned because you cannot create a vSwitch in the current region or zone.

HttpCode	Error code	Error message	Description
400	InvalidParameter	Specified CIDR block is not valid in VPC.	The error message returned because the vSwitch CIDR block does not fall within the VPC CIDR block.
400	InvalidCidrBlock.Overlapped	Specified CIDR block overlapped with other subnets.	The error message returned because the vSwitch CIDR block overlaps with another vSwitch CIDR block or the destination CIDR block of a custom route entry. Make sure that the vSwitch CIDR block does not overlap with another vSwitch CIDR block or the destination CIDR block of a route entry.
400	InvalidCidrBlock.Overlapped	Specified CIDR block overlapped with other entry.	The error message returned because the vSwitch CIDR block overlaps with another vSwitch CIDR block or the destination CIDR block of a custom route entry. Make sure that the vSwitch CIDR block does not overlap with another vSwitch CIDR block or the destination CIDR block of a route entry.
400	QuotaExceeded.VSwitch	Virtual switch quota exceeded.	The error message returned because the number of vSwitches has reached the quota. Reduce the number of vSwitches and try again later.
400	IncorrectRouteEntryStatus	Some route entry status blocked this operation.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	IncorrectVSwitchStatus	Some virtual switch is modifying within the same VPC.	The error message returned because multiple vSwitches are in the Modifying state in the same VPC. Try again later.
400	InvalidCirdrBlock.MaskLength	Specified CIDR block is not valid .	The error message returned because the format of the CIDR block is invalid.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.

HttpCode	Error code	Error message	Description
400	InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	The error message returned because the format of the specified CIDR block is invalid.
400	MissingParameter	Miss mandatory parameter.	The error message returned because required parameters are not set. Check whether you have set all the required parameters before you call this operation.
400	IncorrectVSwitchStatus	VSwitch Creation simultaneously is not supported.	The error message returned because the system failed to create the vSwitch and one or more vSwitches that belong to the VPC are in the Creating state.
400	Forbidden.VpcNotFound	Specified VPC can not found.	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.

15.1.2.1.6.2. DeleteVSwitch

Deletes a vSwitch.

Descriptions

When you call this operation, take note of the following limits:

- Before you delete a vSwitch, delete all the resources that are deployed in the vSwitch first, including Elastic Compute Service (ECS) instances, Server Load Balancer (SLB) instances, and ApsaraDB RDS instances.
- If Source Network Address Translation (SNAT) entries and high-availability virtual IP addresses (HAVIPs) are configured in the vSwitch, delete them before you delete the vSwitch.
- You can delete only vSwitches that are in the **Available** state.
- You cannot delete a vSwitch from a virtual private cloud (VPC) where a vSwitch or a route entry is being created or deleted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVSwitch	The operation that you want to perform. Set the value to **DeleteVSwitch**.

Parameter	Type	Required	Example	Description
VSwitchId	String	Yes	vsw-asdfjcdvflna****	The ID of the vSwitch that you want to delete.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the vSwitch is deployed.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://vpc.aliyuncs.com/?Action=DeleteVSwitch
&VSwitchId=vsw-asdfjcdvflna****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVSwitchResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteVSwitchResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	IncorrectVSwitchStatus	The current virtual switch status does not support this operation.	The error message returned because the vSwitch is in the Pending state and cannot be deleted.

HttpCode	Error code	Error message	Description
400	DependencyViolation	Specified object has dependent resources.	The error message returned because resources deployed in the vSwitch are not deleted and the vSwitch cannot be deleted. Delete the resources deployed in the VPC first before you delete the VPC.
400	DependencyViolation	Some route entry status blocked this operation.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	IncorrectRouteEntryStatus	Some route entry status blocked this operation.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	DependencyViolation.HaVip	VSwitch cannot be deleted when there are some HaVip dependent with it.	The error message returned because the vSwitch is associated with an HAVIP and the vSwitch cannot be deleted.
400	MissingParameter	Miss mandatory parameter.	The error message returned because the required parameters values are missing. Check whether you have set all the required parameters before you call this operation.
404	InvalidVSwitchId.NotFound	VSwitch not exist.	The error message returned because the specified vSwitch does not exist. Check whether you specify a valid vSwitch.
404	IncorrectStatus	Vswtich status not stable.	The error message returned because the vSwitch is in the Pending or Modifying state. Try again later.

15.1.2.1.6.3. ModifyVSwitchAttribute

Modifies the name and description of a vSwitch.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVSwitchAttribute	The operation that you want to perform. Set the value to **ModifyVSwitchAttribute**.
VSwitchId	String	Yes	vsw-25nacdfvue4****	The ID of the vSwitch.
VSwitchName	String	No	VSwitch-1	The new name for the vSwitch. The name must be 2 to 128 characters in length, and can contain, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter The name cannot start with `http://` or `https://` .
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the vSwitch is deployed. You can call the `DescribeRegions` operation to the most recent region list.
Description	String	No	This is my vswitch.	The description of the vSwitch. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://` .
Ipv6CidrBlock	Integer	No	10	The last eight bits of the IPv6 CIDR block of the vSwitch. Valid values: **0** to **255**. You can set this parameter only when the VPC to which the vSwitch belongs has the IPv6 feature enabled.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVSwitchAttribute
&VSwitchId=vsw-25nacdfvue4****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVSwitchAttributeResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</ModifyVSwitchAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVSwitchId.NotFound	The specified virtual switch does not exists.	The error message returned because the specified vSwitch does not exist. Check whether the specified ID is valid.
400	InvalidVSwitchName.Malformed	Specified virtual switch name is not valid.	The error message returned because the format of the specified vSwitch name is invalid. Check whether the specified name is valid.
400	InvalidVSwitchDiscription.Malformed	Specified virtual switch description is not valid.	The error message returned because the format of the specified vSwitch description is invalid. Check whether the specified description is valid.
400	InvalidVSwitchDiscription.Malformed	Specified virtual switch description is not valid.	The error message returned because the specified description of the vSwitch is invalid.

15.1.2.1.6.4. DescribeVSwitchAttributes

Queries detailed information about a vSwitch.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVSwitchAttributes	The operation that you want to perform. Set the value to **DescribeVSwitchAttributes**.
VSwitchId	String	Yes	vsw-25naue4g****	The ID of the vSwitch that you want to query.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the vSwitch is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
DryRun	Boolean	No	false	Specifies whether to precheck this request. Valid values: • **true**: prechecks the API request. Resources are not queried. The system checks whether your AccessKey pair is valid, whether the RAM user is authorized, and whether required parameters are set. If the request fails the precheck, an error message is returned. If the request passes the precheck, the `DryRunOperation` error code is returned. • **false**: sends the request. This is the default value. If the request passes the precheck, a 2XX HTTP status code is returned and the resource is queried.

Response parameters

Parameter	Type	Example	Description
AvailableIpAddressCount	Long	12	The number of available IP addresses.
CidrBlock	String	192.168.0.1/24	The IPv4 CIDR block of the vSwitch.
CloudResources	Array of CloudResourceSetType		The list of resources deployed in the VPC.
CloudResourceSetType			

Parameter	Type	Example	Description
ResourceCount	Integer	1	The number of resources deployed in the VPC.
ResourceType	String	VSwitch	The types of resources deployed in the VPC. Valid values: • **VSwitch**: vSwitches • **VRouter**: vRouters • **RouteTable**: route tables
CreationTime	String	2017-08-22T10:40:25Z	The time when the vSwitch was created.
Description	String	abc	The description of the vSwitch.
Ipv6CidrBlock	String	2408:XXXX:0:2900::/64	The IPv6 CIDR block of the vSwitch.
IsCgw	Boolean	false	Indicates whether the gateway is a customer gateway. Valid values: • **true**: yes • **false** (default): no
IsDefault	Boolean	false	Indicates whether the vSwitch is the default vSwitch. Valid values: • **true**: yes • **false** (default): no
NetworkAclId	String	nacl-2zesich96aa37rl29****	The ID of the network ACL that is associated with the vSwitch.
OwnerId	Long	12345678	The ID of the Alibaba Cloud account to which the vSwitch belongs.
RequestId	String	7B48B4B9-1EAD-469F-B488-594DAB4B6A1A	The ID of the request.
ResourceGroupId	String	rg-acfmxazb4pbgfh****	The ID of the resource group.
RouteTable	Struct		The information about the route table that is associated with the vSwitch.

Parameter	Type	Example	Description
RouteTableId	String	vtb-bp145q7glnuzdv****	The ID of the route table that is associated with the vSwitch.
RouteTableType	String	System	The type of the route table. • **System** : a system route table • **Custom**: a custom route table
Status	String	Pending	The state of the vSwitch. Valid values: • **Pending**: The vSwitch is being configured. • **Available**: The vSwitch is available.
VSwitchId	String	vsw-25b7pcdfvv15t****	The ID of the vSwitch.
VSwitchName	String	test	The name of the vSwitch.
VpcId	String	vpc-257gqcfv642n****	The ID of the VPC to which the vSwitch belongs.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone to which the vSwitch belongs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVSwitchAttributes
&VSwitchId=vsw-25naue4g****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVSwitchAttributesResponse>
  <IsDefault>false</IsDefault>
  <Status>Pending</Status>
  <Description>abc</Description>
  <NetworkAclId>nacl-2zesich96aa37rl29****</NetworkAclId>
  <ResourceGroupId>rg-acfmxazb4pbgfh****</ResourceGroupId>
  <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
  <RequestId>7B48B4B9-1EAD-469F-B488-594DAB4B6A1A</RequestId>
  <AvailableIpAddressCount>12</AvailableIpAddressCount>
  <VSwitchId>vsw-25b7pcdfvv15t****</VSwitchId>
  <CidrBlock>192.168.0.1/24</CidrBlock>
  <RouteTable>
        <RouteTableId>vtb-bp145q7glnuzdv****</RouteTableId>
        <RouteTableType>System</RouteTableType>
  </RouteTable>
  <IsCgw>false</IsCgw>
  <OwnerId>12345678</OwnerId>
  <VpcId>vpc-257gqcfv642n****</VpcId>
  <CreationTime>2017-08-22T10:40:25Z</CreationTime>
  <VSwitchName>test</VSwitchName>
  <Ipv6CidrBlock>2408:XXXX:0:2900::/64</Ipv6CidrBlock>
  <CloudResources>
        <ResourceCount>1</ResourceCount>
        <ResourceType>VSwitch</ResourceType>
  </CloudResources>
</DescribeVSwitchAttributesResponse>
```

`JSON` format

```
{
    "IsDefault": false,
    "Status": "Pending",
    "Description": "abc",
    "NetworkAclId": "nacl-2zesich96aa37rl29****",
    "ResourceGroupId": "rg-acfmxazb4pbgfh****",
    "ZoneId": "cn-qingdao-env17-amtest11001-a",
    "RequestId": "7B48B4B9-1EAD-469F-B488-594DAB4B6A1A",
    "AvailableIpAddressCount": 12,
    "VSwitchId": "vsw-25b7pcdfvv15t****",
    "CidrBlock": "192.168.0.1/24",
    "RouteTable": {
        "RouteTableId": "vtb-bp145q7glnuzdv****",
        "RouteTableType": "System"
    },
    "IsCgw": false,
    "OwnerId": 12345678,
    "VpcId": "vpc-257gqcfv642n****",
    "CreationTime": "2017-08-22T10:40:25Z",
    "VSwitchName": "test",
    "Ipv6CidrBlock": "2408:XXXX:0:2900::/64",
    "CloudResources": {
        "ResourceCount": 1,
        "ResourceType": "VSwitch"
    }
}
```


15.1.2.1.7. vRouter

15.1.2.1.7.1. ModifyVRouterAttribute

Modifies the name and description of a vRouter.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVRouterAttribute	The operation that you want to perform. Set the value to **ModifyVRouterAttribute**.
VRouterId	String	Yes	vrt-bp1lhl0taikrteen8****	The ID of the vRouter.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the vRouter is deployed.

Parameter	Type	Required	Example	Description
VRouterName	String	No	VRouter-1	The name of the vRouter to be modified. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter but cannot start with `http://` or `https://`.
Description	String	No	My VRouter	The description of the vRouter to be modified. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=ModifyVRouterAttribute
&VRouterId=vrt-bp1lhl0taikrteen8****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVRouterAttributeResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</ModifyVRouterAttributeResponse>
```

`JSON` format

```
{
    "ModifyVRouterAttributeResponse": {
        "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVRouterId.NotFound	Specified virtual router does not exist.	The error message returned because the specified vRouter does not exist. Check whether the specified vRouter is valid.
400	InvalidVRouterName.Malformed	Specified virtual router name is not valid.	The error message returned because the name format of the specified vRouter is invalid.
400	InvalidVRouterDiscription.Malformed	Specified virtual router description is not valid.	The error message returned because the description format of the specified vRouter is invalid.
400	MissingParameter	Miss mandatory parameter.	The error message returned because required parameters are not set. Check whether you have set all the required parameters before you call this operation.

15.1.2.1.7.2. DescribeVRouters

Queries vRouters in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVRouters	The operation that you want to perform. Set the value to **DescribeVRouters**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to query vRouters. You can call the `DescribeRegions` operation to query the most recent region list.
VRouterId	String	No	vrt-bp1lhl0taikrteen*****	The ID of the vRouter.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
VRouters	Array of VRouter		Details about the vRouter.
VRouter			
CreationTime	String	2018-03-22T07:46:20Z	The time when the vRouter was created.
Description	String	abc	The description of the vRouter.
RegionId	String	cn-hangzhou	The region to which the vRouter belongs.
RouteTableIds	List	{ "RouteTableId": ["vtb-rj9ybe3y0u41mmjsp****"] }	The ID of the route table in the vRouter.
VRouterId	String	vrt-rj98khsezfqpjrxmv****	The ID of the vRouter.
VRouterName	String	doctest	The name of the vRouter.
VpcId	String	vpc-rj905wotv6y030t1****	The ID of the virtual private cloud (VPC) to which the vRouter belongs.
TotalCount	Integer	1	The total number of entries to return.
PageNumber	Integer	1	The number of the page to return.
PageSize	Integer	10	The number of entries to return on each page.

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVRouters
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVRoutersResponse>
    <PageNumber>1</PageNumber>
    <TotalCount>2</TotalCount>
    <VRouters>
        <VRouter>
            <VRouterName></VRouterName>
            <RouteTableIds>
                <RouteTableId>vtb-bp1krxxzp0c29fmo****</RouteTableId>
            </RouteTableIds>
            <CreationTime>2018-12-06T06:11:55Z</CreationTime>
            <Description></Description>
            <RegionId>cn-hangzhou</RegionId>
            <VRouterId>vrt-bp1jcg5cmxjbl9xgc****</VRouterId>
            <VpcId>vpc-bp1qpo0kug3a20qqe****</VpcId>
        </VRouter>
        <VRouter>
            <VRouterName></VRouterName>
            <RouteTableIds>
                <RouteTableId>vtb-bp1blq1oh0ybfnpm****</RouteTableId>
            </RouteTableIds>
            <CreationTime>2018-11-08T08:54:03Z</CreationTime>
            <Description></Description>
            <RegionId>cn-hangzhou</RegionId>
            <VRouterId>vrt-bp149ve7yeyvio4nc****</VRouterId>
            <VpcId>vpc-bp1aevy8sofi8mh1q****</VpcId>
        </VRouter>
    </VRouters>
    <PageSize>10</PageSize>
    <RequestId>EE4C2417-9437-4333-BDEB-8493F7AA7258</RequestId>
</DescribeVRoutersResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "VRouters": {
        "VRouter": [
            {
                "VRouterName": "",
                "RouteTableIds": {
                    "RouteTableId": [
                        "vtb-rj9ybe3y0u41mmjsp****"
                    ]
                },
                "CreationTime": "2018-03-22T07:46:20Z",
                "Description": "",
                "RegionId": "us-west-1",
                "VRouterId": "vrt-rj98khsezfqpjrxmv****",
                "VpcId": "vpc-rj905wotv6y030t1z****"
            }
        ]
    },
    "PageSize": 10,
    "RequestId": "CB2793A8-845F-444C-8E93-76F1BBDF9C78"
}
```


15.1.2.1.8. Route table

15.1.2.1.8.1. CreateRouteTable

Creates a custom route table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateRouteTable	The operation that you want to perform. Set the value to **CreateRouteTable**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the virtual private cloud (VPC) to which the custom route table belongs. You can call the `DescribeRegions` operation to query the most recent region list.
VpcId	String	Yes	vpc-bp1qpo0kug3a20qqe****	The ID of the VPC to which the custom route table belongs.

Parameter	Type	Required	Example	Description
RouteTableName	String	No	myRouteTable	The name of the route table. The name must be 2 to 128 characters in length and must start with a letter. The name can contain digits, periods (.), underscores (_), and hyphens (-). It cannot start with `http://` or `https://`.
Description	String	No	abc	The description of the route table. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	62172DD5-6BAC-45DF-8D44-E11ED28DCAC0	The ID of the instance.
RouteTableId	String	vtb-bp145q7glnuzdvzu2****	The ID of the route table.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateRouteTable
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-bp1qpo0kug3a20qqe****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateRouteTableResponse>
      <RequestId>62172DD5-6BAC-45DF-8D44-E11ED28DCAC0</RequestId>
      <RouteTableId>vtb-bp145q7glnuzdvzu2****</RouteTableId>
</CreateRouteTableResponse>
```

`JSON` format

```
{
    "RequestId": "62172DD5-6BAC-45DF-8D44-E11ED28DCAC0",
    "RouteTableId": "vtb-bp145q7glnuzdvzu2****"
}
```

Error codes

HttpCode	Error code	Error message	Required
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.

15.1.2.1.8.2. CreateRouteEntry

Adds a custom route entry to the route table of a vRouter or a virtual border router (VBR) in a virtual private cloud (VPC).

Descriptions

When you call this operation, take note of the following limits:

- The number of custom route entries in a route table cannot exceed 48.
- The destination CIDR block of a custom route entry cannot be the same as or overlap with the CIDR block of a VPC vSwitch.
- The destination CIDR block of a custom route entry cannot be 100.64.0.0/10 or a subset of 100.64.0.0/10.
- The destination CIDR blocks of route entries in the same route table must be unique.
- If the specified destination CIDR block is an IP address, a 32-bit subnet mask is used.
- Multiple custom route entries can point to the same next hop.
- The next hop of a custom route entry and the route table must belong to the same VPC.
- You can configure equal-cost multi-path (ECMP) route entries by setting the NextHopList parameter.
  - When you add non-ECMP route entries, you must set DestinationCidrBlock, NextHopType, and NextHopId. NextHopList is not supported.
  - When you add ECMP route entries, you must set DestinationCidrBlock and NextHopList. NextHopType and NextHopId are not supported.

When you call this operation, take note of the following limits:

- The number of custom route entries in a route table cannot exceed 48.
- The NextHopList parameter is not supported.
- The destination CIDR block of a custom route entry cannot be 100.64.0.0/10 or a subset of 100.64.0.0/10.
- The destination CIDR blocks of route entries in the same route table must be unique.
- If the specified destination CIDR block is an IP address, a 32-bit subnet mask is used.
- Multiple route entries can point to the same next hop.
- The next hop of a custom route entry must be a vRouter interface associated with the VBR.
- You can add route entries only when the VBR is in the Active state, and the physical connection associated with the VBR is enabled and unlocked.
- You can add only non-ECMP route entries. To create such an entry, you must set DestinationCidrBlock, NextHopType, and NextHopId. NextHopList is not supported.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateRouteEntry	The operation that you want to perform. Set the value to **CreateRouteEntry**.
DestinationCidrBlock	String	Yes	192.168.0.0/24	The destination CIDR block of the custom route entry. Both IPv4 and IPv6 CIDR blocks are supported. Make sure that the destination CIDR block meets the following requirements: • The destination CIDR block is not 100.64.0.0/10 or a subset of 100.64.0.0/10. • The destination CIDR block of the custom route entry is different from the destination CIDR blocks of other route entries in the same route table. • If the specified destination CIDR block is an IPv4 address, a 32-bit subnet mask is used. • If the specified destination CIDR block is an IPv6 address, a 128-bit subnet mask is used.
RouteTableId	String	Yes	vtb-bp145q7glnuzd****	The ID of the route table to which you want to add a custom route entry.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the route table belongs. You can call the `DescribeRegions` operation to query the most recent region list.
NextHopId	String	No	ri-2zeo3xzyf38r4****	The ID of the next hop.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.
RouteEntryName	String	No	test	The name of the custom route entry that you want to add. The name must be 2 to 128 characters in length and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter.
Description	String	No	abc	The description of the router entry.
NextHopType	String	No	RouterInterface	The type of next hop. Valid values: • **Instance**: The next hop is an ECS instance. This is the default value. • **HaVip**: The next hop is a high-availability virtual IP address (HAVIP). • **RouterInterface**: The next hop is a router interface. • **NetworkInterface**: The next hop is an elastic network interface (ENI). • **VpnGateway**: The next hop is a VPN gateway. • **IPv6Gateway**: The next hop is an IPv6 gateway.
NextHopList.N.NextHopType	String	No	RouterInterface	The next hop type of the equal-cost multi-path routing (ECMP) route. Set the value to **RouterInterface**.

Parameter	Type	Required	Example	Description
NextHopList.N.NextHopId	String	No	ri-2zeo3xzyf3cd8r4****	The ID of the next hop of the ECMP route.
NextHopList.N.Weight	Integer	No	10	The route weight of the next hop of the ECMP route. Valid values: **0** to **100**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateRouteEntry
&DestinationCidrBlock=192.168.0.0/24
&RouteTableId=vtb-bp145q7glnuzd****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateRouteEntryResponse>
<RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
<CreateRouteEntryResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidInstanId.NotFound	Specified instance does not exist.	The error message returned because the specified instance does not exist. Check whether the instance ID is valid.

HttpCode	Error code	Error message	Description
400	MissingParameter	Miss mandatory parameter.	The error message returned because required parameters are not set. Check whether you have set all the required parameters before you call this operation.
400	InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	The error message returned because the format of the specified CIDR block is invalid.
404	InvalidNextHopId.NotFound	Specified next hop does not exist.	The error message returned because the specified next hop does not exist.
404	InvalidRouteTableId.NotFound	Specified route table does not exist.	The error message returned because the specified route table does not exist.
400	InvalidCIDRBlock.Duplicate	Specified CIDR block is already exists.	The error message returned because the specified CIDR block already exists in the route table.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.
400	IncorrectInstanceStatus	Current instance status does not support this operation.	The error message returned because this operation cannot be performed while the instance is in the current state.
400	QuotaExceeded	Route entry quota exceeded in this route table.	The error message returned because the number of route entries in the route table has reached the upper limit.
400	IncorrectRouteEntryStatus	Some route entry status blocked this operation.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.

HttpCode	Error code	Error message	Description
400	InvalidCidrBlock	Specified CIDR block is not valid.	The error message returned because: 1.The error message returned because you are unauthorized to use the 10.0.0.0/8 CIDR block. 2.The error message returned because the destination CIDR block cannot be a subset of the CIDR blocks of the vSwitches in the VPC. 3.The error message returned because the CIDR block cannot be 100.64.0.0/10.
400	InvalidNextHopType	Specified parameter "NextHopType" is not valid	The error message returned because the specified next hop type is invalid.
400	InvalidNextHop.NotFound	Specified next hop does not exist.	The error message returned because the IP address of the specified next hop does not exist.
400	InvalidVRouter.NotFound	vRouter not exists.	The error message returned because the specified vRouter does not exist. Check whether the specified vRouter is valid.
400	InvalidVPC.NotFound	vpc not exists.	The error message returned because the specified VPC does not exist. Check whether the configuration of the VPC is valid.
400	InvalidNexthopTypeAndList.BothNull	both nexthopType and nextHopList are null.	The error message returned because the NextHopType and NextHopList parameters are not specified.
400	InvalidNexthopTypeAndList.BothNotNull	both nexthopType and nextHopList are not null.	The error message returned because you cannot leave both the NextHopType and the NextHopList parameters empty.
400	InvalidRouterInterface	invalid router interface.	The error message returned because the specified router interface does not exist.
400	InvalidOppositeRouterType	nexthop list cannot only contain router interface whose opposite router interface is on vbr.	The error message returned because the specified next hop is invalid. The peer router of the router interface that you specify as the next hop must be a VBR.

HttpCode	Error code	Error message	Description
400	InvalidNexthopListSize	nexthop size is illegal. Must be between 2 and 4.	The error message returned because you must specify two to four router interfaces as next hops.
400	InvalidEntryRuleQuota.NotFound	Route entry quota rule not exists.	The error message returned because the number of route entries that you create has reached the upper limit.
400	Forbidden.CheckEntryRuleQuota	Route entry quota rule check error.	The error message returned because an error occurs when the system checks the quota of route entries.
400	InvalidVBRStatus	invalid virtual border router status.	The error message returned because the VBR is in a state that does not support the operation.
400	InvalidPhysicalConnectionBusinessStatus	invalid physical connection business status.	The error message returned because the Express Connect circuit is in a state that does not support the operation.
404	InvalidHaVipId.NotFound	The specified HaVip does not exist in the specified VPC.	The error message returned because the specified HAVIP does not exist in the VPC.
400	IncorrectHaVipStatus	This operation is denied because satus of the specified HaVip is neither Available nor InUse.	The error message returned because you cannot perform the operation when the specified HAVIP is in the Available or InUse state.
400	CountLimitExceed.HaVipRouteEntry	There can be 5 route entry to HaVip at most in one route table.	The error message returned because the number of route entries that point to the HAVIP reaches the upper limit.
400	InvalidRouteEntry.Duplicate	The route entry already exist.	The error message returned because the specified route entry already exists.
403	IncorrectInstanceStatus	The current status of the resource does not support this operation.	The error message returned because the specified resource is in a state that does not support the operation.

HttpCode	Error code	Error message	Description
400	IncorrectRouteEntryStatus	Specified routeEntry status error.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	IncorrectRouteEntryStatus	VBR has NotStable route entry.	The error message returned because one or more route entries in the current virtual border router (VBR) are in the Pending or Modifying state.
400	InvalidParam	The Ecmp routerEntry with router interfaces local vgw vip not match.	The error message returned because the route entry does not match the gateway IP address of the router interface.
400	INVALID_WEIGHT_PARAM	Specified value of weight invalid	The error message returned because the specified weight is invalid.
400	FORBIDDEN_USE_VPC_AS_INTERNET_GATEWAY	The Specified CIDR must be in vpc CIDR.	The error message returned because the specified CIDR block must be a subset of the VPC CIDR block.
400	INVALID_VPC_ID	The Specified VpcId not match.	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidRouteEntrySize	The Specified routerEntry size not legal.	The error message returned because you must specify two to four router interfaces as next hops if you want to configure ECMP routing.
400	InvalidRouteEntry	Specified routeEntry not exist.	The error message returned because the specified route entry does not exist.

15.1.2.1.8.3. DeleteRouteEntry

Deletes a custom route entry from a route table.

Descriptions

When you call this operation, take note of the following rules:

- You can delete only a custom route entry that is in the Available state.
- You cannot delete a custom route entry from a VPC where a vSwitch or a route entry is being created or deleted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteRouteEntry	The operation that you want to perform. Set the value to **DeleteRouteEntry**.
DestinationCidrBlock	String	Yes	10.0.0.0/16	The destination CIDR block of the route entry. IPv4 and IPv6 CIDR blocks are supported.
RouteTableId	String	Yes	vtb-hp37isva36oj7839j****	The ID of the route table to which the route entry belongs.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the route table to which the route entry belongs. You can call the `DescribeRegions` operation to query the most recent region list.
RouteEntryId	String	No	rte-bp1mnnr2al0naomn****	The ID of the route entry that you want to delete.
NextHopId	String	No	ngw-bp1vpo4l2vd7zef8o****	The ID of the next hop.
NextHopList.N.NextHopType	String	No	RouterInterface	The next hop type of the equal-cost multi-path routing (ECMP) route. Set the value to **RouterInterface**.
NextHopList.N.NextHopId	String	No	ri-2zeo3xzyf38r43cd****	The ID of the next hop of the ECMP route.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteRouteEntry
&DestinationCidrBlock=10.0.0.0/16
&RouteTableId=vtb-hp37isva36oj7839j****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteRouteEntryResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteRouteEntryResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	MissingParameter	Either nexthopId or nextHopList should be specified	The error message returned because nexthopId or nextHopList is not set.
400	MissingParameter	Miss mandatory parameter.	The error message returned because required parameters are not set. Check whether you have set all the required parameters before you call this operation.
400	IncorrcetRouteEntryStatus	Some route entry status blocked this operation.	The error message returned because one or more route entries in the route table are in the Pending or Modifying state.
400	InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	The error message returned because the format of the specified CIDR block is invalid.
404	InvalidRouteTableId.NotFound	Specified route table does not exist.	The error message returned because the specified route table does not exist.
400	OperationDenied	Specified operation is denied as route entry type is system.	The error message returned because the specified route entry is a system route entry.

HttpCode	Error code	Error message	Description
400	InvalidRouteEntry.NotFound	Route entry not exists.	The error message returned because the specified route entry does not exist. Check whether the specified route entry is valid.
400	InvalidVRouter.NotFound	vRouter not exists.	The error message returned because the specified vRouter does not exist. Check whether the specified vRouter is valid.
400	IncorrectRouteEntryStatus	Some route entry status blocked this operation.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	IncorrectRouteEntryStatus	VBR has NotStable route entry.	The error message returned because one or more route entries in the current virtual border router (VBR) are in the Pending or Modifying state.
404	InvalidVpcId.NotFound	Specified value of VpcId is not found in our record.	The error message returned because the specified VPC does not exist. Check whether the specified VPC is valid.
400	IncorrectRouteEntryStatus	Specified routeEntry status error.	The error message returned because one or more route entries in the current route table are in the Pending or Modifying state.
400	Forbbiden	Specified RouteEntry cannot allowed delete by openApi.	The error message returned because you cannot call this operation to delete the specified route entry.
400	InvalidNextHop	Specified nexthop and nexthop list cannot both null.	The error message returned because the next hop type and next hop list cannot be empty at the same time.
400	InvalidRouteEntry	Specified routeEntry not exist.	The error message returned because the specified route entry does not exist.
400	IncorrectVpcStatus	Current VPC status does not support this operation.	The error message returned because the state of the VPC does not support this operation.

15.1.2.1.8.4. DescribeRouteEntryList

Queries information about route entries in a route table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRouteEntryList	The operation that you want to perform. Set the value to **DescribeRouteEntryList**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the route table to which the route entries belong. You can call the `DescribeRegions` operation to query the most recent region list.
RouteTableId	String	Yes	vtb-bp1r9pvl4xen8s9ju****	The ID of the route table that you want to query.
RouteEntryId	String	No	rte-bp1mnnr2al0naomnp****	The ID of the route entry that you want to query.
DestinationCidrBlock	String	No	192.168.2.0/24	The destination CIDR block of the route entry. IPv4 and IPv6 CIDR blocks are supported. **Note** Only Apsara Stack China Site supports IPv6 CIDR blocks.
RouteEntryName	String	No	abc	The name of the route entry.
IpVersion	String	No	IPv4	The IP version. Valid values: • **IPv4**: IPv4 • **IPv6**: IPv6 **Note** Only Apsara Stack China Site supports IPv6.

Parameter	Type	Required	Example	Description
RouteEntryType	String	No	System	The type of the route entry. Valid values: • **Custom**: a custom route entry • **System** : a system route entry
NextHopId	String	No	vpn-bp10zyaph5cc8b7c7****	The ID of the next hop.
NextHopType	String	No	Instance	The type of the next hop. Valid values: • **Instance**: an Elastic Compute Service (ECS) instance • **HaVip**: a high-availability virtual IP address (HAVIP) • **VpnGateway**: a VPN gateway • **NatGateway**: a NAT gateway • **NetworkInterface**: a secondary elastic network interface (ENI) • **RouterInterface**: a router interface • **IPv6Gateway**: an IPv6 gateway **Note** Only Apsara Stack China Site supports IPv6 gateways as next hops.
MaxResult	Integer	No	50	The number of entries to return on each page. Valid values: **20** to **100**. Default value: **50**.
NextToken	String	No	caeba0bbb2be03f84eb48b699f0a4****	The token used to start the next query.

Response parameters

Parameter	Type	Example	Description
NextToken	String	caeba0bbb2be03f84eb48b699f0a4883	The token used to start the next query.
RequestId	String	14A07460-EBE7-47CA-9757-12CC4761D47A	The ID of the request.

Parameter	Type	Example	Description
RouteEntrys	Array of RouteEntry		The information about the route entry.
RouteEntry			
Description	String	RouteEntryDescription	The description of the vRouter.
DestinationCidrBlock	String	10.0.0.0/24	The destination CIDR block of the route entry.
IpVersion	String	IPv4	The IP version. Valid values: • **IPv4** : IPv4 • **IPv6**: IPv6
NextHops	Array of NextHop		The information about the next hop.
NextHop			
Enabled	Integer	0	Indicates whether the route entry is available. Valid values: • **0**: unavailable • **1**: available
NextHopId	String	vpn-bp10zyaph5cc8b7c7****	The ID of the next hop.
NextHopRegionId	String	cn-qingdao-env17-d01	The ID of the region where the next hop is deployed.
NextHopRelatedInfo	Struct		The information about the next hop.
InstanceId	String	vpc-bp1t36rn9l53iwbsf****	The ID of the instance associated with the next hop.
InstanceType	String	VPC	The type of the instance associated with the next hop. Valid values: • **VPC**: a virtual private cloud (VPC) • **VBR**: a virtual border router (VBR)

Parameter	Type	Example	Description
RegionId	String	ch-qingdao-env17-d01	The ID of the region where the next hop is deployed.
NextHopType	String	Instance	The type of the next hop. Valid values: • **Instance**: an ECS instance • **HaVip**: an HAVIP • **VpnGateway**: a VPN gateway • **NatGateway**: a NAT gateway • **NetworkInterface**: a secondary ENI • **RouterInterface**: a router interface • **IPv6Gateway**: an IPv6 gateway **Note** Only Alibaba Cloud China Site supports IPv6 gateways as next hops.
Weight	Integer	100	The weight of the route entry.
RouteEntryId	String	rte-bp1mnnr2al0naomnp****	The ID of the route entry.
RouteEntryName	String	aaa	The name of the route entry.
RouteTableId	String	vtb-bp15w5q90d2rk3bww****	The ID of the route table.
Status	String	Available	The state of the route entry. Valid values: • **Pending**: being configured • **Available**: available • **Modifying**: being modified
Type	String	Custom	The type of the route entry. Valid values: • **Custom**: a custom route entry • **System** : a system route entry

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeRouteEntryList
&RegionId=cn-qingdao-env17-d01
&RouteTableId=vtb-bp1r9pvl4xen8s9ju****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRouteEntryListResponse>
  <NextToken>caeba0bbb2be03f84eb48b699f0a4883</NextToken>
  <RequestId>14A07460-EBE7-47CA-9757-12CC4761D47A    </RequestId>
  <RouteEntrys>
        <Status>Available</Status>
        <RouteEntryId>rte-bp1mnnr2al0naomnp****</RouteEntryId>
        <Type>Custom</Type>
        <Description>RouteEntryDescription</Description>
        <RouteTableId>vtb-bp15w5q90d2rk3bww****</RouteTableId>
        <IpVersion>IPv4</IpVersion>
        <RouteEntryName>aaa</RouteEntryName>
        <DestinationCidrBlock>10.0.0.0/24</DestinationCidrBlock>
        <NextHops>
              <NextHopRegionId>cn-qingdao-env17-d01</NextHopRegionId>
              <NextHopType>Instance</NextHopType>
              <NextHopId>vpn-bp10zyaph5cc8b7c7****</NextHopId>
              <Enabled>0</Enabled>
              <Weight>100</Weight>
              <NextHopRelatedInfo>
                    <InstanceId>vpc-bp1t36rn9l53iwbsf****</InstanceId>
                    <RegionId>ch-qingdao-env17-d01</RegionId>
                    <InstanceType>VPC</InstanceType>
              </NextHopRelatedInfo>
        </NextHops>
  </RouteEntrys>
</DescribeRouteEntryListResponse>
```

`JSON` format

```
{
    "NextToken": "caeba0bbb2be03f84eb48b699f0a4883",
    "RequestId": "14A07460-EBE7-47CA-9757-12CC4761D47A",
    "RouteEntrys": {
        "Status": "Available",
        "RouteEntryId": "rte-bp1mnnr2al0naomnp****",
        "Type": "Custom",
        "Description": "RouteEntryDescription",
        "RouteTableId": "vtb-bp15w5q90d2rk3bww****",
        "IpVersion": "IPv4",
        "RouteEntryName": "aaa",
        "DestinationCidrBlock": "10.0.0.0/24",
        "NextHops": {
            "NextHopRegionId": "cn-qingdao-env17-d01",
            "NextHopType": "Instance",
            "NextHopId": "vpn-bp10zyaph5cc8b7c7****",
            "Enabled": 0,
            "Weight": 100,
            "NextHopRelatedInfo": {
                "InstanceId": "vpc-bp1t36rn9l53iwbsf****",
                "RegionId": "ch-qingdao-env17-d01",
                "InstanceType": "VPC"
            }
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Required
400	OperationFailed.QueryCenEntry	Operation is denied because getting CEN route entry has failed.	The error message returned because the system cannot obtain the Cloud Enterprise Network (CEN) routes.

15.1.2.1.8.5. ModifyRouteEntry

Modifies the name and description of a custom route entry.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyRouteEntry	The operation that you want to perform. Set the value to **ModifyRouteEntry**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the route entry belongs. You can call the `DescribeRegions` operation to query the most recent region list.
RouteEntryId	String	Yes	rte-acfvgfsghfdd****	The ID of the custom route entry.
RouteEntryName	String	No	EntryName	The name of the route entry. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter but cannot start with `http://` or `https://`.
Description	String	No	EntryDescription	The description of the route entry. The description must be 2 to 256 characters in length. The description must start with a letter but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	861E6630-AEC0-4B2D-B214-6CB5E44B7F04	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyRouteEntry
&RegionId=cn-qingdao-env17-d01
&RouteEntryId=rte-acfvgfsghfdd****
&<Common request parameters>
```

Sample success response

`XML` format

```
<ModifyRouteEntryResponse>
    <RequestId>861E6630-AEC0-4B2D-B214-6CB5E44B7F04</RequestId>
</ModifyRouteEntryResponse>
```

`JSON` format

```
{
 "RequestId": "861E6630-AEC0-4B2D-B214-6CB5E44B7F04"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the permissions and try again.
400	InvalidRouteEntryId.NotFound	The specified routeEntry does not exist.	The error message returned because the specified route entry does not exist.

15.1.2.1.8.6. AssociateRouteTable

Associates a custom route table with a vSwitch in the same virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateRouteTable	The operation that you want to perform. Set the value to **AssociateRouteTable**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the VPC to which the route table belongs. You can call the `DescribeRegions` operation to the most recent region list.
RouteTableId	String	Yes	vtb-bp145q7glnuzdvzu2****	The ID of the route table.
VSwitchId	String	Yes	vsw-25ncdvfaue4****	The ID of the vSwitch.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DC668356-BCB4-42FD-9BC3-FA2B2E04B634	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateRouteTable
&RegionId=cn-qingdao-env17-d01
&RouteTableId=vtb-bp145q7glnuzdvzu2****
&VSwitchId=vsw-25ncdvfaue4****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssociateRouteTableResponse>
  <RequestId>DC668356-BCB4-42FD-9BC3-FA2B2E04B634</RequestId>
</AssociateRouteTableResponse>
```

`JSON` format

```
{"RequestId":"DC668356-BCB4-42FD-9BC3-FA2B2E04B634"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRouteTableId.NotFound	Specified route table does not exist.	The error message returned because the specified route table does not exist.

15.1.2.1.8.7. DeleteRouteTable

Deletes a custom route table.

Descriptions

Before you delete a custom route table, disassociate the vSwitch that is associated with the custom route table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteRouteTable	The operation that you want to perform. Set the value to **DeleteRouteTable**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the virtual private cloud (VPC) to which the route table belongs. You can call the `DescribeRegions` operation to query the most recent region list.
RouteTableId	String	Yes	vtb-bp145q7glnuzdvzu2****	The ID of the route table to be deleted.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DC668356-BCB4-42FD-9BC3-FA2B2E04B634	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteRouteTable
&RegionId=cn-qingdao-env17-d01
&RouteTableId=vtb-bp145q7glnuzdvzu2****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteRouteTableResponse>
      <RequestId>DC668356-BCB4-42FD-9BC3-FA2B2E04B634</RequestId>
</DeleteRouteTableResponse>
```

`JSON` format

```
{
  "RequestId": "DC668356-BCB4-42FD-9BC3-FA2B2E04B634"
}
```

Error codes

HttpCode	Error code	Error message	Required
400	IncorrectVSwitchStatus	The current virtual switch status does not support this operation.	The error message returned because the vSwitch is in the Pending state and cannot be deleted.

15.1.2.1.8.8. DescribeRouteTableList

Queries the list of route tables.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRouteTableList	The operation that you want to perform. Set the value to **DescribeExporterRuleList**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the virtual private cloud (VPC) to which the route table belongs. You can call the `DescribeRegions` operation to query the most recent region list.
RouterType	String	No	VBR	The ID of the vRouter to which the route table belongs. Set the value to: • **VRouter** (default): a vRouter • **VBR**: a virtual border router (VBR)
RouterId	String	No	vrt-bp1lhl0taikrteen8****	The ID of the vRouter to which the route table belongs.

Parameter	Type	Required	Example	Description
VpcId	String	No	vpc-bp15zckdt37pq72****	The ID of the vRouter to which the route table belongs. After you set this parameter, **RouterType** is automatically set to **VRouter**.
RouteTableId	String	No	vtb-bp145q7glnuzdvzu2****	The ID of the route table that you want to query.
RouteTableName	String	No	doctest	The name of the route table that you want to query.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
ResourceGroupId	String	No	rg-acfmxazb4ph****	The ID of the resource group to which the route table to be queried belongs.
Tag.N.Key	String	No	Key1	The key of the tag.
Tag.N.Value	String	No	Value1	The value of the tag.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The response code. **Note** The HTTP status code 200 indicates that the call was successful.
Message	String	The Request is not authorization.	The returned message.

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	DC668356-BCB4-42FD-9BC3-FA2B2E04B634	The ID of the instance.
RouterTableList	Array of RouterTableListType		The list of route tables.
RouterTableListType			
CreationTime	String	2017-08-22T10:40:25Z	The time when the route table was created.
Description	String	This is Route Table.	The description of the route table.
OwnerId	Long	12345678	The ID of the Apsara Stack tenant account to which the route table belongs.
ResourceGroupId	String	rg-acfmxazb4ph****	The ID of the resource group to which the route table belongs.
RouteTableId	String	vtb-bp145q7glnuzdvzu2****	The ID of the route table.
RouteTableName	String	doctest	The name of the route table.
RouteTableType	String	System	The type of the route table. • **Custom**: a custom route table • **System** : a system route table
RouterId	String	vrt-bp1lhl0taikrteen8****	The ID of the router to which the route table belongs.

Parameter	Type	Example	Description
RouterType	String	VBR	The type of the router to which the route table belongs. Valid values: • **VRouter**: a vRouter • **VBR**: a virtual border router (VBR)
Status	String	Available	The state of the route table. • **Pending**: The route table is being configured. • **Available**: The route table is available.
Tags	Array of Tag		The tag of the route table.
Tag			
Key	String	type	The key of the tag that is added to the route table.
Value	String	ingress	The value of the tag that is added to the route table.
VSwitchIds	List	vsw-bp12mw1f8k3jgygk9****	The list of vSwitches deployed in the VPC.
VpcId	String	vpc-bp15zckdt37pq72****	The ID of the VPC to which the route table belongs.
Success	Boolean	true	Indicates whether the call is successful. Valid values: • **true**: The call is successful. • **false**: The call fails.
TotalCount	Integer	1	The number of entries to return.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeRouteTableList
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRouteTableListResponse>
  <TotalCount>1</TotalCount>
  <PageSize>10</PageSize>
  <Message>The Request is not authorization.</Message>
  <RequestId>DC668356-BCB4-42FD-9BC3-FA2B2E04B634</RequestId>
  <PageNumber>1</PageNumber>
  <RouterTableList>
        <Status>Available</Status>
        <Description>This is Route Table.</Description>
        <RouteTableId>vtb-bp145q7glnuzdvzu2****</RouteTableId>
        <OwnerId>12345678</OwnerId>
        <ResourceGroupId>rg-acfmxazb4ph****</ResourceGroupId>
        <VpcId>vpc-bp15zckdt37pq72****</VpcId>
        <RouterType>VBR</RouterType>
        <CreationTime>2017-08-22T10:40:25Z</CreationTime>
        <RouterId>vrt-bp1lhl0taikrteen8****</RouterId>
        <RouteTableType>System</RouteTableType>
        <RouteTableName>doctest</RouteTableName>
        <Tags>
              <Value>ingress</Value>
              <Key>type</Key>
        </Tags>
        <VSwitchIds>vsw-bp12mw1f8k3jgygk9****</VSwitchIds>
  </RouterTableList>
  <Code>200</Code>
  <Success>true</Success>
</DescribeRouteTableListResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "PageSize": 10,
    "Message": "The Request is not authorization.",
    "RequestId": "DC668356-BCB4-42FD-9BC3-FA2B2E04B634",
    "PageNumber": 1,
    "RouterTableList": {
        "Status": "Available",
        "Description": "This is Route Table.",
        "RouteTableId": "vtb-bp145q7glnuzdvzu2****",
        "OwnerId": 12345678,
        "ResourceGroupId": "rg-acfmxazb4ph****",
        "VpcId": "vpc-bp15zckdt37pq72****",
        "RouterType": "VBR",
        "CreationTime": "2017-08-22T10:40:25Z",
        "RouterId": "vrt-bp1lhl0taikrteen8****",
        "RouteTableType": "System",
        "RouteTableName": "doctest",
        "Tags": {
            "Value": "ingress",
            "Key": "type"
        },
        "VSwitchIds": "vsw-bp12mw1f8k3jgygk9****"
    },
    "Code": 200,
    "Success": true
}
```


Error codes

HttpCode	Error code	Error message	Description.
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are not authorized to perform this operation on the specified resource. You can apply for the permissions and try again.

15.1.2.1.8.9. UnassociateRouteTable

Disassociates a route table from a vSwitch.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateRouteTable	The operation that you want to perform. Set the value to **UnassociateRouteTable**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the virtual private cloud (VPC) to which the route table belongs. You can call the `DescribeRegions` operation to query the most recent region list.
RouteTableId	String	Yes	vtb-bp145q7glnuzdvzu2****	The ID of the route table.
VSwitchId	String	Yes	vsw-25naucfvfbgte4****	The ID of the vSwitch from which you want to disassociate the route table.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	62172DD5-6BAC-45DF-8D44-62172DD5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateRouteTable
&RegionId=cn-qingdao-env17-d01
&RouteTableId=vtb-bp145q7glnuzdvzu2****
&VSwitchId=vsw-25naucfvfbgte4****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociateRouteTableResponse>
      <RequestId>62172DD5-6BAC-45DF-8D44-62172DD5</RequestId>
</UnassociateRouteTableResponse>
```

`JSON` format

```
{
  "RequestId": "62172DD5-6BAC-45DF-8D44-62172DD5"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRouteTableId.NotFound	Specified route table does not exist.	The error message returned because the specified route table does not exist.

15.1.2.1.9. Region

15.1.2.1.9.1. DescribeRegions

Queries the most recent region list.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRegions	The operation that you want to perform. Set the value to **DescribeRegions**.
ProductType	String	No	ECS	The type of the cloud service.
AcceptLanguage	String	No	zh-CN	The language of the response. Valid values: • **zh-CN**: Chinese. This is the default value. • **en-US**: English

Response parameters

Parameter	Type	Example	Description
Regions	Array of Region		The list of regions.
Region			
LocalName	String	China (Qingdao)	The name of the region.

Parameter	Type	Example	Description
RegionEndpoint	String	vpc.aliyuncs.com	The endpoint of the region.
RegionId	String	cn-qingdao-env17-d01	The ID of the region.
RequestId	String	611CB80C-B6A9-43DB-9E38-0B0AC3D9B58F	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeRegions
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeRegionsResponse>
  <RequestId>611CB80C-B6A9-43DB-9E38-0B0AC3D9B58F</RequestId>
  <Regions>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <RegionEndpoint>vpc.aliyuncs.com</RegionEndpoint>
        <LocalName>China (Qingdao)</LocalName>
  </Regions>
</DescribeRegionsResponse>
```

`JSON` format

```
{
    "RequestId": "611CB80C-B6A9-43DB-9E38-0B0AC3D9B58F",
    "Regions": {
        "RegionId": "cn-qingdao-env17-d01",
        "RegionEndpoint": "vpc.aliyuncs.com",
        "LocalName": "China (Qingdao)"
    }
}
```

15.1.2.1.9.2. DescribeZones

Queries zones in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeZones	The operation that you want to perform. Set the value to **DescribeZones**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where zones are queried. You can call the `DescribeRegions` operation to the most recent region list.

Response parameters

Parameter	Type	Example	Description
Zones	Array of Zone		The zones that are returned.
Zone			
LocalName	String	Hangzhou Zone	The name of the zone.
ZoneId	String	cn-cn-qingdao-env17-amtest11001-a	The ID of the zone.
RequestId	String	6FEA0CF3-D3B9-43E5-A304-D217037876A8	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeZones
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeZonesResponse>
  <RequestId>6FEA0CF3-D3B9-43E5-A304-D217037876A8</RequestId>
  <Zones>
        <ZoneId>cn-cn-qingdao-env17-amtest11001-a</ZoneId>
        <LocalName>Hangzhou Zone B</LocalName>
  </Zones>
</DescribeZonesResponse>
```

`JSON` format

```
{
    "RequestId": "6FEA0CF3-D3B9-43E5-A304-D217037876A8",
    "Zones": {
        "ZoneId": "cn-cn-qingdao-env17-amtest11001-a",
        "LocalName": "Hangzhou Zone B"
    }
}
```

15.1.2.1.10. Tag

15.1.2.1.10.1. TagResources

Creates tags and adds the tags to resources at a time.

Descriptions

Tags are used to classify instances. Each tag consists of a key and a value. To use tags, make sure that the following requirements are met:

- The keys of tags that are added to the same instance must be unique.
- You cannot create tags without adding them to instances. All tags must be added to instances.
- Tag information is not shared across regions.
- Virtual private clouds (VPCs), route tables, vSwitches, and elastic IP addresses (EIPs) that belong to the same Apsara Stack tenant account and in the same region share tag information with each other.

  For example, if you have added a tag to a VPC, the tag is available to vSwitches, route tables, and EIPs that belong to the same account and in the same region where the VPC is created. You can select this tag from the editing page without the need to enter the tag again. You can modify the key and value of a tag or remove a tag from an instance. After you delete an instance, all tags that are added to the instance are deleted.
- You can add up to 20 tags to each instance. Before you add a tag to an instance, the system automatically checks the number of existing tags. An error message is returned if the maximum number of tags is reached.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	TagResources	The operation that you want to perform. Set the value to **TagResources**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the resource belongs.

Parameter	Type	Required	Example	Description
ResourceId.N	RepeatList	Yes	vpc-bp16qjewdsunr41m1****	The ID of the resource. Valid values of N: 1 to 20.
ResourceType	String	Yes	VPC	The type of the resource. Valid values: • **VPC**: a VPC • **VSWITCH**: a vSwitch • **ROUTETABLE**: a route table • **EIP**: an elastic IP address (EIP)
Tag.N.Key	String	No	FinanceDept	The key of the tag that is added to the resource. Valid values of N: **1** to **20**. This parameter value cannot be an empty string. The key can be up to 64 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter but cannot start with `aliyun` or `acs:`. It cannot contain `http://` or `https://`.
Tag.N.Value	String	No	FinanceJoshua	The value of tag N that is added to the resource. Valid values of N: **1** to **20**. The key can be an empty string. The tag value must be up to 128 characters in length, and start with a letter. It can contain digits, periods (.), underscores (_), and hyphens (-). It cannot start with `aliyun` or `acs:`. It cannot contain `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C46FF5A8-C5F0-4024-8262-B16B639225A0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=TagResources
&RegionId=cn-qingdao-env17-d01
&ResourceId.1=vpc-bp16qjewdsunr41m1****
&ResourceType=VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TagResourcesResponse>
      <RequestId>C46FF5A8-C5F0-4024-8262-B16B639225A0</RequestId>
</TagResourcesResponse>
```

`JSON` format

```
{
 "RequestId":"C46FF5A8-C5F0-4024-8262-B16B639225A0"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. To obtain the required permissions, submit a ticket.

15.1.2.1.10.2. ListTagResources

Queries tags that are added to one or more instances.

Descriptions

- Set **ResourceId.N** or **Tag.N that consists of Tag.N.Key and Tag.N.Value** in the request to specify the object to be queried.
- **Tag.N** is a resource tag that consists of a key-value pair. If you set only **Tag.N.Key**, all tag values that are associated with the specified key are returned. If you set only **Tag.N.Value**, an error message is returned.
- If you set **Tag.N** and **ResourceId.N** to filter tags, **ResourceId.N** must match all specified key-value pairs.
- If you specify multiple key-value pairs, resources that contain these key-value pairs are returned.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ListTagResources	The operation that you want to perform. Set the value to **ListTagResources**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the resource belongs.
ResourceType	String	Yes	VPC	The type of the resource. Valid values: • **VPC**: a VPC • **VSWITCH**: a vSwitch • **ROUTETABLE**: a route table • **EIP**: an elastic IP address (EIP)
ResourceId.N	RepeatList	No	vpc-bp16qjewdsunr41m1****	The ID of the resource. Valid values of N: 1 to 20.
Tag.N.Key	String	No	FinanceDept	The key of the tag that is added to the resource. Valid values of N: 1 to 20. It cannot be an empty string. The key can be up to 64 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter but cannot start with `aliyun` or `acs:`. It cannot contain `http://` or `https://`.

Parameter	Type	Required	Example	Description
Tag.N.Value	String	No	FinanceJoshua	The value of tag N that is added to the resource. Valid values of N: 1 to 20. The tag value can be an empty string. The tag value must be up to 128 characters in length, and start with a letter or Chinese character. It can contain digits, periods (.), underscores (_), and hyphens (-) and cannot start with `aliyun` or `acs:`. It cannot contain `http://` or `https://`.
NextToken	String	No	caeba0bbb2be03f84eb48b699f0a****	The query token. Set this parameter to the NextToken value that is returned in the last API call. If no subsequent request is sent, you do not need to set this parameter.
MaxResults	Integer	No	10	The maximum number of entries to return.

Response parameters

Parameter	Type	Example	Description
NextToken	String	caeba0bbb2be03f84eb48b699f0****	The token that is required for the next query. If the **NextToken** parameter is empty, no subsequent request will be sent.
RequestId	String	DE65F6B7-7566-4802-9007-96F2494AC512	The ID of the request.
TagResources	Array of TagResource		The resources to which the tags are added.
TagResource			
ResourcId	String	vpc-bp16qjewdsunr41m1****	The ID of the resource.
ResourceId	String	2zebd226fxed6h4i****	The ID of the resource.
ResourceType	String	VPC	The type of the resource.

Parameter	Type	Example	Description
TagKey	String	FinanceDept	The key of the tag.
TagValue	String	FinanceJoshua	The value of the tag.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ListTagResources
&RegionId=cn-qingdao-env17-d01
&ResourceType=VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ListTagResourcesResponse>
  <NextToken>caeba0bbb2be03f84eb48b699f0****</NextToken>
  <RequestId>DE65F6B7-7566-4802-9007-96F2494AC512</RequestId>
  <TagResources>
        <ResourceId>2zebd226fxed6h4i****</ResourceId>
        <TagKey>FinanceDept</TagKey>
        <ResourceType>VPC</ResourceType>
        <ResourcId>vpc-bp16qjewdsunr41m1****</ResourcId>
        <TagValue>FinanceJoshua</TagValue>
  </TagResources>
</ListTagResourcesResponse>
```

`JSON` format

```
{
    "NextToken": "caeba0bbb2be03f84eb48b699f0****",
    "RequestId": "DE65F6B7-7566-4802-9007-96F2494AC512",
    "TagResources": {
        "ResourceId": "2zebd226fxed6h4i****",
        "TagKey": "FinanceDept",
        "ResourceType": "VPC",
        "ResourcId": "vpc-bp16qjewdsunr41m1****",
        "TagValue": "FinanceJoshua"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. To obtain the required permissions, submit a ticket.

15.1.2.1.10.3. UnTagResources

Removes tags from specified resources.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnTagResources	The operation that you want to perform. Set the value to **UntagResources**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the resource belongs.
ResourceId.N	RepeatList	Supported	vpc-bp16qjewdsunr41m1****	The ID of the resource. Valid values of N: **1** to **20**.
ResourceType	String	Yes	VPC	The type of the resource. Valid values: • **VPC**: a virtual private cloud (VPC) • **VSWITCH**: a vSwitch • **ROUTETABLE**: a route table • **EIP**: an elastic IP address (EIP)
TagKey.N	RepeatList	No	FinanceDept	The key of the tag that you want to remove. Valid values of N: **1** to **20**. The key can be an empty string. The key can be up to 64 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter but cannot start with `aliyun` or `acs:`. It cannot contain `http://` or `https://`.

Parameter	Type	Required	Example	Description
All	Boolean	No	false	Specifies whether to remove all tags from the resource. This parameter takes effect only when the **TagKey.N** parameter is not set in the request. Valid values: • **true**: removes all tags from the resource. • **false**(default): does not remove tags.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C46FF5A8-C5F0-4024-8262-B16B639225A0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnTagResources
&RegionId=cn-qingdao-env17-d01
&ResourceId.1=vpc-bp16qjewdsunr41m1****
&ResourceType=VPC
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UntagResourcesResponse>
      <RequestId>C46FF5A8-C5F0-4024-8262-B16B639225A0</RequestId>
</UntagResourcesResponse>
```

`JSON` format

```
{
 "RequestId":"C46FF5A8-C5F0-4024-8262-B16B639225A0"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. To obtain the required permissions, submit a ticket.

15.1.2.1.11. BGP

15.1.2.1.11.1. DescribeBgpGroups

Queries Border Gateway Protocol (BGP) groups in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBgpGroups	The operation that you want to perform. Set the value to **DescribeBgpGroups**.
RegionId	String	Yes	cn-shanghai	The region to which the BGP group belongs. You can call the DescribeRegions operation to query region IDs.
RouterId	String	No	vrt-kojok19x3j0q6kx	The ID of the virtual border router (VBR) that is associated with the BGP group.
BgpGroupId	String	No	bgpg-wz9f62v4fbg2gxxxxxxx	The ID of the BGP group.
IsDefault	Boolean	No	false	Specifies whether the specified BGP group is the default one.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	1	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
TotalCount	Integer	10	The total number of entries.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	5	The number of entries returned per page.
BgpGroups	Array of BgpGroup		The detailed information about the BGP group.
BgpGroup			
AuthKey	String	! PWZ2wsq	The key used by the BGP group.
BgpGroupId	String	bgp-wz977wcrmb69axxxxxxxx	The ID of the BGP group.
Description	String	The description of the BGP group.	The description of the BGP group
Hold	String	30	The hold time of the BGP connection. If no message is received within the hold time, the BGP peer is considered disconnected.
IpVersion	String	IPv4	
IsFake	String	true	Whether the autonomous system (AS) number is valid.
Keepalive	String	10	The keepalive time.
LocalAsn	String	45104	The local AS number.

Parameter	Type	Example	Description
Name	String	The name of the BGP group	The name of the BGP group.
PeerAsn	String	1111	The AS number of the BGP peer.
RegionId	String	cn-shanghai	The ID of the region to which the BGP group belongs. For more information about region IDs, see Regions and zones.
RouteLimit	String	99	Routing limits.
RouterId	String	vrt-bp1lhl0taikrteen****	The ID of the VBR.
Status	String	active	The status of the BGP peer.
RequestId	String	1D0971B2-A35A-42C1-A44C-E91360C36C0B	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBgpGroups
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBgpGroupsResponse>
   <TotalCount>1</TotalCount>
   <PageSize>10</PageSize>
   <RequestId>09E2C0FD-37FF-4737-80DF-517AC36D43DB</RequestId>
   <BgpGroups>
      <BgpGroup>
         <BgpGroupId>bgpg-2zev8h2wo4******</BgpGroupId>
         <LocalAsn>45104</LocalAsn>
         <Hold>30</Hold>
         <Description></Description>
         <AuthKey></AuthKey>
         <IsFake>true</IsFake>
         <PeerAsn>234</PeerAsn>
         <Keepalive>10</Keepalive>
         <RouteLimit>99</RouteLimit>
         <Name>Group1</Name>
         <Status>Pending</Status>
         <RouterId>vbr-2zecmmvg5gvu8i4******</RouterId>
         <RegionId>cn-beijing</RegionId>
      </BgpGroup>
   </BgpGroups>
</DescribeBgpGroupsResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "09E2C0FD-37FF-4737-80DF-517AC36D43DB",
    "BgpGroups": {
        "BgpGroup": [
            {
                "BgpGroupId": "bgpg-2zev8h2wo******",
                "LocalAsn": 45104,
                "Hold": 30,
                "Description": "",
                "AuthKey": "",
                "IsFake": true,
                "PeerAsn": 234,
                "Keepalive": 10,
                "RouteLimit": 99,
                "Name": "Group1",
                "Status": "Pending",
                "RouterId": "vbr-2zecmmvg5gvu8i4*****",
                "RegionId": "cn-beijing"
            }
        ]
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because unknown errors occur.
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

15.1.2.1.11.2. ModifyBgpGroupAttribute

Modifies the configuration of a Border Gateway Protocol (BGP) group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBgpGroupAttribute	The operation that you want to perform. Set the value to **ModifyBgpGroupAttribute**.
BgpGroupId	String	Yes	bgpg-wz9f62v4fbg2g******	The ID of the BGP group.
RegionId	String	Yes	cn-shanghai	The ID of the region where the BGP group is deployed. You can call the DescribeRegions operation to query region IDs.
Name	String	No	test	The name of the BGP group. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
Description	String	No	BGP	The description of the BGP group. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
LocalAsn	Long	No	23	The autonomous system (AS) number of the device on the cloud side.
PeerAsn	Long	No	1111	The AS number of the local device.
AuthKey	String	No	! PWZ2wsq	The authentication key of the BGP group.
IsFakeAsn	Boolean	No	true	A router that runs BGP typically belongs to only one AS. In some cases, for example, the AS needs to be migrated or is merged with another AS, a new AS number replaces of the original one.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001*******	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8C3C6D7C-A1CE-4FD8-BC57-DC493A55F76F	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyBgpGroupAttribute
&BgpGroupId=bgpg-wz9f62v4fbg2g********
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBgpGroupAttributeResponse>
      <RequestId>C1221A1F-2ACD-4592-8F27-474E02883159</RequestId>
</ModifyBgpGroupAttributeResponse>
```

`JSON` format

```
{
  "RequestId": "C1221A1F-2ACD-4592-8F27-474E02883159"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.
400	QuotaExceeded.Bgp	bgp peer count per vbr quota exceed.	The error message returned because the number of BGP groups in the virtual border router (VBR) has reached the upper limit.
400	QuotaExceeded.Nqa	nqa count per vbr quota exceed.	The error message returned because the Network Quality Analyzer (NQA) number has exceeded the upper limit.
400	QuotaExceeded.BgpNetwork	bgp network count per vbr quota exceed.	The error message returned because the number of BGP networks in the VBR has reached the upper limit.
400	InvalidPeerIpAddress	multi pconn peer ip can not be null.	The error message returned because the IP addresses of multiple physical connections cannot be empty.
400	InvalidVbrNetwork	vbr netowrk not exists	The error message returned because the specified VBR does not exist. Check whether the specified VBR ID is valid.
400	InvalidBgpGroup	bgp group not exists	The error message returned because the BGP group does not exist.
400	InvalidBgpName.Malformed	Specified Bgp Group name is not valid.	The error message returned because the name of the BGP group is invalid.

HttpCode	Error code	Error message	Description
400	InvalidBgpDiscription.Malformed	Specified Bgp Group description is not valid.	The error message returned because the description of the BGP group is invalid.
400	InvalidBgpAuthkey.Malformed	Specified Bgp Group authkey is not valid.	The error message returned because the verification key of the BGP group is invalid.
400	InvalidIP.Malformed	Ip malformed.	The error message returned because the format of the IP address is invalid.
400	InvalidPeerAsn.Malformed	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the autonomous system (AS) number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotFound	instance not found	The error message returned because the instance does not exist.
400	InvalidParams.NotFound	vpc instance not found	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidParams.AlreadyExists	bgp network already exists	The error message returned because the BGP network already exists.
400	InvalidStatus.CannotOperate	invalid status cannot operate	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.11.3. DeleteBgpGroup

Deletes a Border Gateway Protocol (BGP) group.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBgpGroup	The operation that you want to perform. Set the value to **DeleteBgpGroup**.

Parameter	Type	Required	Example	Description
BgpGroupId	String	Yes	bgpg-wz9f62v4fbg2gxxxxxxx	The ID of the BGP group.
RegionId	String	Yes	cn-shanghai	The region to which the BGP group belongs. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	97E2E97F-968C-48AF-A310-AC4D068854DB	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DeleteBgpGroup
&BgpGroupId=bgpg-wz9f62v4fbg2gxxxxxxxx
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBgpGroupResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteBgpGroupResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.
400	QuotaExceeded.Bgp	bgp peer count per vbr quota exceed.	The error message returned because the number of BGP groups in the virtual border router (VBR) has reached the upper limit.
400	QuotaExceeded.Nqa	nqa count per vbr quota exceed.	The Network Quality Analyzer (NQA) number has exceeded the quota of the VBR.
400	QuotaExceeded.BgpNetwork	bgp network count per vbr quota exceed.	The number of BGP networks in the VBR has reached the upper limit.
400	InvalidPeerIpAddress	multi pconn peer ip can not be null.	The IP addresses of multiple physical connections cannot be empty.
400	InvalidVbrNetwork	vbr netowrk not exists	The error message returned because the specified vRouter does not exist. Check whether the specified VBR is valid.
400	InvalidBgpGroup	bgp group not exists	The error message returned because the BGP group does not exist.
400	InvalidBgpName.Malformed	Specified Bgp Group name is not valid.	The error message returned because the name of the BGP group is invalid.
400	InvalidBgpDiscription.Malformed	Specified Bgp Group description is not valid.	The error message returned because the description of the BGP group is invalid.
400	InvalidBgpAuthkey.Malformed	Specified Bgp Group authkey is not valid.	The error message returned because the verification key of the BGP group is invalid.
400	InvalidIP.Malformed	Ip malformed.	The error message returned because the format of the IP address is invalid.

HttpCode	Error code	Error message	Description
400	InvalidPeerAsn.Malformed	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the autonomous system (AS) number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotNull	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the autonomous system (AS) number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotFound	instance not found	The error message returned because the instance does not exist.
400	InvalidParams.NotFound	vpc instance not found	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidParams.AlreadyExists	bgp network already exists	The error message returned because the BGP network already exists.
400	InvalidStatus.CannotOperate	invalid status cannot operate	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.11.4. DescribeBgpPeers

Queries BGP peers in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBgpPeers	The operation that you want to perform. Set the value to **DescribeBgpPeers**.
RegionId	String	Yes	cn-shanghai	The ID of the region to which the BGP group belongs. You can call the DescribeRegions operation to query region IDs.

Parameter	Type	Required	Example	Description
RouterId	String	No	vbr-2zecmmvg5gvu8i4te****	The ID of the router.
BgpPeerId	String	No	bgp-2ze3un0ft1jd1xd*****	The ID of the BGP peer.
BgpGroupId	String	No	bgpg-2zev8h2wo414sfh******	The ID of the BGP group.
IsDefault	Boolean	No	false	Specifies whether the BGP group is the default one. • **true**: yes • **false**: no
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	1	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
BgpPeers	Array of BgpPeer		The detailed information about the BGP peer.
BgpPeer			
Name	String	test	The name of the BGP peer.
PeerIpAddress	String	116.62.**. **	The IP address of the BGP peer.
AuthKey	String	! PWZ2wsq******	The authentication key of the BGP group.
RouterId	String	vbr-2zecmmvg5gvu8i4te****w	The ID of the router.

Parameter	Type	Example	Description
Status	String	active	The state of the BGP peer. Valid values: • **Pending**: pending. • **Available**: available. • **Modifying**: being modified. • **Deleting**: being deleted. • **Deleted**: deleted.
BfdMultiHop	Integer	3	
BgpGroupId	String	bgp-wz977wcrmb69********	The ID of the BGP group.
BgpPeerId	String	bgp-wz977wcrmb69agdb******	The ID of the BGP peer.
BgpStatus	String	deleted	The state of the BGP connection. Valid values: • **creating**: being created. • **working**: being used. • **modifying**: being modified. • **deleting**: being deleted. • **Deleted**: deleted.
Description	String	xxxxxxxxx	The description of the BGP group.
EnableBfd	Boolean	true	Indicates whether the Bidirectional Forwarding Detection (BFD) protocol is enabled.
Hold	String	30	The hold time of the BGP connection.
IpVersion	String	IPv4	
IsFake	String	true	Indicates whether a fake autonomous system (AS) number is used.
Keepalive	String	10	The hold time of the BGP connection.
LocalAsn	String	45104	The local AS number.

Parameter	Type	Example	Description
PeerAsn	String	active	The AS number of the BGP peer.
RegionId	String	cn-shanghai	The ID of the region to which the BGP group belongs.
RouteLimit	String	99	Routing limits.
TotalCount	Integer	10	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	2	The number of entries returned per page.
RequestId	String	DE77A7F3-3B74-41C0-A5BC-CAFD188C28B6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBgpPeers
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBgpPeersResponse>
  <TotalCount>10</TotalCount>
  <BgpPeers>
        <Status>active</Status>
        <Description>xxxxxxxxx</Description>
        <IpVersion>IPv4</IpVersion>
        <PeerIpAddress>116.62. **. **</PeerIpAddress>
        <Keepalive>10</Keepalive>
        <RouterId>vbr-2zecmmvg5gvu8i4te****w</RouterId>
        <PeerAsn>active</PeerAsn>
        <Name>test</Name>
        <BgpPeerId>bgp-wz977wcrmb69agdb******</BgpPeerId>
        <LocalAsn>45104</LocalAsn>
        <BfdMultiHop>3</BfdMultiHop>
        <EnableBfd>true</EnableBfd>
        <BgpStatus>deleted</BgpStatus>
        <IsFake>true</IsFake>
        <AuthKey>! PWZ2wsq******</AuthKey>
        <RouteLimit>99</RouteLimit>
        <RegionId>cn-shanghai</RegionId>
        <Hold>30</Hold>
        <BgpGroupId>bgp-wz977wcrmb69*******</BgpGroupId>
  </BgpPeers>
  <PageSize>2</PageSize>
  <RequestId>DE77A7F3-3B74-41C0-A5BC-CAFD188C28B6</RequestId>
  <PageNumber>1</PageNumber>
</DescribeBgpPeersResponse>
```

`JSON` format

```
{
    "TotalCount": 10,
    "BgpPeers": {
        "Status": "active",
        "Description": "xxxxxxxxx",
        "IpVersion": "IPv4",
        "PeerIpAddress": "116.62. **. **",
        "Keepalive": 10,
        "RouterId": "vbr-2zecmmvg5gvu8i4te****w",
        "PeerAsn": "active",
        "Name": "test",
        "BgpPeerId": "bgp-wz977wcrmb69agdb******",
        "LocalAsn": 45104,
        "BfdMultiHop": 3,
        "EnableBfd": true,
        "BgpStatus": "deleted",
        "IsFake": true,
        "AuthKey": "! PWZ2wsq******",
        "RouteLimit": 99,
        "RegionId": "cn-shanghai",
        "Hold": 30,
        "BgpGroupId": "bgp-wz977wcrmb69*******"
    },
    "PageSize": 2,
    "RequestId": "DE77A7F3-3B74-41C0-A5BC-CAFD188C28B6",
    "PageNumber": 1
}
```


Error codes

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because unknown errors occur.
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

15.1.2.1.11.5. DeleteBgpPeer

Deletes a specific Border Gateway Protocol (BGP) peer.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBgpPeer	The operation that you want to perform. Set the value to **DeleteBgpPeer**.
BgpPeerId	String	Yes	bgp-wz977wcrmb69a********	The ID of the BGP peer.
RegionId	String	Yes	cn-shanghai	The region to which the BGP group belongs. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001xxxxxxxx	The client token that is used to ensure the idempotence of the request. The value of this parameter is generated by a client. The value must be unique among different requests and must be 1 to 64 ASCII characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	AEBB1EB6-3C15-4A35-B4CE-03485200C143	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteBgpPeer
&BgpPeerId=bgp-wz977wcrmb69a********
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBgpPeerResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteBgpPeerResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.
400	QuotaExceeded.Bgp	bgp peer count per vbr quota exceed.	The error message returned because the number of BGP groups has reached the upper limit.
400	QuotaExceeded.Nqa	nqa count per vbr quota exceed.	The Network Quality Analyzer (NQA) number exceeds the virtual border router (VBR) quota.
400	QuotaExceeded.BgpNetwork	bgp network count per vbr quota exceed.	The number of BGP networks in the VBR has reached the quota.
400	InvalidPeerIpAddress	multi pconn peer ip can not be null.	The IP addresses of multiple physical connections cannot be empty.
400	InvalidVbrNetwork	vbr netowrk not exists	The error message returned because the specified VBR does not exist. Check whether the parameter is set to a valid value.
400	InvalidBgpGroup	bgp group not exists	The error message returned because the BGP group does not exist.
400	InvalidBgpName.Malformed	Specified Bgp Group name is not valid.	The error message returned because the name of the BGP group is invalid.
400	InvalidBgpDiscription.Malformed	Specified Bgp Group description is not valid.	The error message returned because the description of the BGP group is invalid.
400	InvalidBgpAuthkey.Malformed	Specified Bgp Group authkey is not valid.	The error message returned because the verification key of the BGP group is invalid.
400	InvalidIP.Malformed	Ip malformed.	The error message returned because the format of the IP address is invalid.

HttpCode	Error code	Error message	Description
400	InvalidPeerAsn.Malformed	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the autonomous system (AS) number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotNull	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the AS number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotFound	instance not found	The error message returned because the instance does not exist.
400	InvalidParams.NotFound	vpc instance not found	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidParams.AlreadyExists	bgp network already exists	The error message returned because the BGP network already exists.
400	InvalidStatus.CannotOperate	invalid status cannot operate	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.11.6. AddBgpNetwork

Advertises a Border Gateway Protocol (BGP) network.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddBgpNetwork	The operation that you want to perform. Set the value to **AddBgpNetwork**.
DstCidrBlock	String	Yes	10.10.**. **/32	The CIDR block of the virtual private cloud (VPC) or vSwitch that you want to connect to a data center.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-shanghai	The ID of the region where the virtual border router (VBR) is deployed. You can call the DescribeRegions operation to query region IDs.
RouterId	String	Yes	vrt-2zeo3xzyf38r4u********	The ID of the vRouter associated with the router interface.
VpcId	String	No	vpc-bp1qpo0kug3a2********	The ID of the VPC.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9C7FA9D6-72E0-48A9-A9C3-2DA8569CD5EB	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=AddBgpNetwork
&DstCidrBlock=10.10. **. **/32
&RegionId=cn-shanghai
&RouterId=vrt-2zeo3xzyf38r4u******
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AddBgpNetworkResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</AddBgpNetworkResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	QuotaExceeded.Bgp	bgp peer count per vbr quota exceed.	The error message returned because the number of BGP groups in the VBR has reached the quota.
400	QuotaExceeded.Nqa	nqa count per vbr quota exceed.	The error message returned because the Network Quality Analyzer (NQA) number exceeds the VBR quota.
400	QuotaExceeded.BgpNetwork	bgp network count per vbr quota exceed.	The error message returned because the number of BGP networks in the VBR has reached the quota.
400	InvalidPeerIpAddress	multi pconn peer ip can not be null.	The error message returned because the IP addresses of multiple physical connections cannot be empty.
400	InvalidVbrNetwork	vbr netowrk not exists	The error message returned because the specified vRouter does not exist. Check whether the ID of the VBR is valid.
400	InvalidBgpGroup	bgp group not exists	The error message returned because the BGP group does not exist.
400	InvalidBgpName.Malformed	Specified Bgp Group name is not valid.	The error message returned because the name of the BGP group is invalid.
400	InvalidBgpDiscription.Malformed	Specified Bgp Group description is not valid.	The error message returned because the description of the BGP group is invalid.

HttpCode	Error code	Error message	Description
400	InvalidBgpAuthkey.Malformed	Specified Bgp Group authkey is not valid.	The error message returned because the verification key of the BGP group is invalid.
400	InvalidIP.Malformed	Ip malformed.	The error message returned because the format of the IP address is invalid.
400	InvalidPeerAsn.Malformed	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the autonomous system (AS) number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotNull	parameter must not null.	The error message returned because a required parameter is not set.
400	InvalidParams.NotFound	instance not found	The error message returned because the specified instance does not exist.
400	InvalidParams.NotFound	vpc instance not found	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidParams.AlreadyExists	bgp network already exists	The error message returned because the BGP network already exists.
400	InvalidStatus.CannotOperate	invalid status cannot operate	The error message returned because the state is invalid and the operation cannot be performed.
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.
400	QuotaExceeded.Bgp	bgp group count per vbr quota exceed.	The error message returned because the number of BGP groups in the VBR has reached the quota.

15.1.2.1.11.7. DeleteBgpNetwork

Deletes an advertised Border Gateway Protocol (BGP) network.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBgpNetwork	The operation that you want to perform. Set the value to **DeleteBgpNetwork**.
DstCidrBlock	String	Yes	10.110.192.12/32	The CIDR block of the virtual private cloud (VPC) or vSwitch that you want to connect to a data center.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the BGP group is deployed. You can call the DescribeRegions operation to query region IDs.
RouterId	String	Yes	vrt-bp1lhl0taikrteen80oxx	The ID of the virtual border router (VBR).
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	22F4C006-D3BB-4F96-9FF9-4C8335276D70	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DeleteBgpNetwork
&DstCidrBlock=10.110.192.12/32
&RegionId=cn-hangzhou
&RouterId=vrt-bp1lhl0taikrteen80oxx
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBgpNetworkResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteBgpNetworkResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID is invalid. Check whether the service is available in the specified region.
400	QuotaExceeded.Bgp	bgp peer count per vbr quota exceed.	The error message returned because the number of BGP groups in the VBR has reached the upper limit.
400	QuotaExceeded.Nqa	nqa count per vbr quota exceed.	The error message returned because the Network Quality Analyzer (NQA) number has exceeded the upper limit.
400	QuotaExceeded.BgpNetwork	bgp network count per vbr quota exceed.	The error message returned because the number of BGP networks in the VBR has reached the upper limit.
400	InvalidPeerIpAddress	multi pconn peer ip can not be null.	The error message returned because the IP addresses of multiple physical connections cannot be empty.
400	InvalidVbrNetwork	vbr netowrk not exists	The error message returned because the specified VBR does not exist. Check whether the specified VBR ID is valid.
400	InvalidBgpGroup	bgp group not exists	The error message returned because the BGP group does not exist.
400	InvalidBgpName.Malformed	Specified Bgp Group name is not valid.	The error message returned because the name of the BGP group is invalid.

HttpCode	Error code	Error message	Description
400	InvalidBgpDiscription.Malformed	Specified Bgp Group description is not valid.	The error message returned because the description of the BGP group is invalid.
400	InvalidBgpAuthkey.Malformed	Specified Bgp Group authkey is not valid.	The error message returned because the verification key of the BGP group is invalid.
400	InvalidIP.Malformed	Ip malformed.	The error message returned because the format of the IP address is invalid.
400	InvalidPeerAsn.Malformed	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the AS number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotNull	invalid peer asn cannot equals aliyun asn:45104	The error message returned because the AS number cannot be the same as that of Apsara Stack.
400	InvalidParams.NotFound	instance not found	The error message returned because the instance does not exist.
400	InvalidParams.NotFound	vpc instance not found	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	InvalidParams.AlreadyExists	bgp network already exists	The error message returned because the BGP network already exists.
400	InvalidStatus.CannotOperate	invalid status cannot operate	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.11.8. DescribeBgpNetworks

Queries advertised Border Gateway Protocol (BGP) networks.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBgpNetworks	The operation that you want to perform. Set the value to **DescribeBgpNetworks**.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the BGP group is deployed. You can call the DescribeRegions operation to query region IDs.
RouterId	String	No	vrt-2zeazning6tb**********	The ID of the vRouter to which the route table belongs.
PageNumber	Integer	No	2	The number of the page to return. Default value: 1.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: 50. Default value: 10.

Response parameters

Parameter	Type	Example	Description
BgpNetworks	Array of BgpNetwork		BGP networks.
BgpNetwork			
DstCidrBlock	String	10.1.**. **/24	The advertised BGP network.
RouterId	String	vrt-bp1el837xkkak********	The ID of the vRouter.
Status	String	Enabled	The state of the advertised BGP network.
VpcId	String	vpc-bp1qpo0kug3a********	The ID of the virtual private cloud (VPC).
PageNumber	Integer	2	The page number of the returned page.

Parameter	Type	Example	Description
PageSize	Integer	12	The number of entries returned per page.
RequestId	String	6F513A15-669F-419D-B511-08A85292059B	The ID of the request.
TotalCount	Integer	2	The total number of advertised BGP networks.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeBgpNetworks
&RegionId=cn-hangzhou
&RouterId=vrt-2zeazning6tb********
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBgpNetworksResponse>
      <BgpNetworks>
            <BgpNetwork>
                  <DstCidrBlock>192.168. **. **/24</DstCidrBlock>
                  <VpcId></VpcId>
            </BgpNetwork>
      </BgpNetworks>
      <RequestId>6F513A15-669F-419D-B511-08A85292059B</RequestId>
      <PageSize>10</PageSize>
      <TotalCount>1</TotalCount>
</DescribeBgpNetworksResponse>
```

`JSON` format

```
{
  "BgpNetworks": {
    "BgpNetwork": [
      {
        "DstCidrBlock": "192.168. **. **/24",
        "VpcId": ""
      }
    ]
  },
  "RequestId": "6F513A15-669F-419D-B511-08A85292059B",
  "PageSize": 10,
  "TotalCount": 1
}
```

Error codes

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because unknown errors have occurred.
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

15.1.2.1.12. VBR

15.1.2.1.12.1. CreateVirtualBorderRouter

Creates a virtual border router (VBR).

If you create a VBR for the current Apsara Stack tenant account, the state of the VBR becomes **Enabled** after it is created. If you create a VBR for another Apsara Stack tenant account, the state of the VBR becomes **Unconfirmed** after it is created. The Unconfirmed state indicates that the other Apsara Stack tenant account must confirm the operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVirtualBorderRouter	The operation that you want to perform. Set the value to **CreateVirtualBorderRouter**.
PhysicalConnectionId	String	Yes	pc-xxxxxxxxx	The ID of the physical connection.
RegionId	String	Yes	cn-shanghai	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.

Parameter	Type	Required	Example	Description
VlanId	Integer	Yes	10	The VLAN ID of the VBR. Valid values: **1 to 2999**. **Note** Only the owner of the physical connection can set this parameter. The VLAN IDs of two VBRs of the same physical connection must be different.
VbrOwnerId	Long	No	10	The ID of the Apsara Stack tenant account that owns the VBR. The default value is the ID of the current Apsara Stack tenant account, which is the owner of the physical connection.
CircuitCode	String	No	longtel001	The circuit code provided by the Internet service provider (ISP) of the physical connection. **Note** Only the owner of the physical connection can set this parameter.
LocalGatewayIp	String	No	116.62.222.XX	The IP address of the local VBR on the Apsara Stack side.
PeerGatewayIp	String	No	116.62.222.XX	The IP address of the VBR peer. This parameter can be set only in the following scenario: The owner of the physical connection is creating a VBR for the current Apsara Stack tenant account.
PeeringSubnetMask	String	No	255.255.255.252	The subnet mask of the IP address on the Apsara Stack side and the IP address on the client side. The two IP addresses must belong to the same subnet.

Parameter	Type	Required	Example	Description
Description	String	No	The description of the VBR	The description of the VBR. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.
Name	String	No	test	The name of the VBR. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
VbrId	String	vbr-bp1jcg5cmxjbl9xgc****	The ID of the VBR.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreateVirtualBorderRouter
&PhysicalConnectionId=pc-xxxxxxxxx
&RegionId=cn-shanghai
&VlanId=10
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateRouterInterfaceResponse>
      <RequestId>980960B0-2969-40BF-8542-EBB34FD358AB</RequestId>
      <VbrId>vbr-2zecmmvg5gvu8i4t****</VbrId>
</CreateRouterInterfaceResponse>
```

`JSON` format

```
{
    "CreateRouterInterfaceResponse": {
        "RequestId": "980960B0-2969-40BF-8542-EBB34FD358AB",
        "VbrId": "vbr-2zecmmvg5gvu8i4te****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId is not found.	The error message returned because the specified region ID is invalid. Check whether the service is available in the specified region.
400	InvalidPhysicalConnectionId.NotFound	The specified PhysicalConnectionId is not found.	The error message returned because the ID of the physical connection does not exist.
400	InvalidVlanId.Used	The specified VlanId has been used.	The error message returned because the VLAN ID is being used.
400	MissingParameter	The input parameter 'PhysicalConnectionId' that is mandatory for processing this request is not supplied.	The error message returned because PhysicalConnectionId is not set.
400	InvalidPhysicalConnectionId.NotEnabled	The specified PhysicalConnectionId is not in Enabled state.	The error message returned because the state of the physical connection is invalid. Check the physical connection and try again.
404	InvalidVbrOwnerId.NotFound	The specified VbrOwnerId is not valid.	The error message returned because VbrOwnerId is set to an invalid value.
400	InvalidVlanId.Malformed	The specified VlanId is not valid.	The error message returned because VlanId is set to an invalid value.

HttpCode	Error code	Error message	Description
400	InvalidCircuitCode.Malformed	The specified CircuitCode is not valid.	The error message returned because CircuitCode is set to an invalid value.
400	MissingParameter	The input parameter 'LocalGatewayIp' that is mandatory for processing this request is not supplied.	The error message returned because LocalGatewayIp is not set.
400	InvalidLocalGatewayIp.Malformed	The specified LocalGatewayIp is not valid.	The error message returned because the IP address of the local gateway is invalid.
400	MissingParameter	The input parameter 'PeerGatewayIp' that is mandatory for processing this request is not supplied.	The error message returned because PeerGatewayIp is not set.
400	MissingParameter	The input parameter 'PeeringSubnetMask' that is mandatory for processing this request is not supplied.	The error message returned because PeeringSubnetMask is not set.
400	InvalidPeeringSubnetMask.Malformed	The specified PeeringSubnetMask is not valid.	The error message returned because PeeringSubnetMask is set to an invalid value. Check whether PeeringSubnetMask is set to a valid value.
403	Forbidden.LocalGatewayIpNotAllowedByCaller	The caller is not allowed to specify the LocalGatewayIp parameter.	The error message returned because you are not allowed to set LocalGatewayIp.
403	Forbidden.PeerGatewayIpNotAllowedByCaller	The caller is not allowed to specify the PeerGatewayIp parameter.	The error message returned because you are not allowed to set PeerGatewayIp.
403	Forbidden.PeeringSubnetMaskNotAllowedByCaller	The caller is not allowed to specify the PeeringSubnetMask parameter.	The error message returned because you are not allowed to set PeeringSubnetMask.
403	Forbidden.NameNotAllowedByCaller	The caller is not allowed to specify the Name parameter.	The error message returned because you are not allowed to set Name.
403	Forbidden.DescriptionNotAllowedByCaller	The caller is not allowed to specify the Description parameter.	The error message returned because you are not allowed to set Description.
400	InvalidName.Malformed	The specified ? Name? is not valid.	The error message returned because the format of the name is invalid.

HttpCode	Error code	Error message	Description
400	InvalidDescription.Malformed	The specifid ? Description? is not valid.	The error message returned because the specified resource description is invalid. The description must be 2 to 256 characters in length and cannot start with http:// or https://.
400	QuotaExceeded.vbrPerpConn	Virtual boarder router per PhysicalConnection quota exceed.	The error message returned because the number of VBRs of the current physical connection has reached the upper limit. Reduce the number of VBRs and try again.
400	QuotaExceeded.freevbr	Free virtual boarder router quota exceed.	The error message returned because the VBR quota is exhausted.
400	InvalidIp.NotSameSubnet	Local gateway ip and peer gateway ip are not in the same subnet.	The error message returned because the IP addresses of the local gateway and the peer gateway do not fall within the same subnet.
404	CROSS_BID.FORBIDDEN	Create VBR across bid is illegal	The error message returned because you are not allowed to create a VBR for a user of another site.

15.1.2.1.12.2. DeleteVirtualBorderRouter

Deletes a virtual border router (VBR).

When you call this operation, take note of the following rules:

- Before you delete a VBR, you must delete all router interfaces on the VBR.
- You can delete only a VBR that is in the Unconfirmed, Enabled, or Terminated state.
- If the owner of a physical connection wants to delete a VBR that belongs to another Apsara Stack tenant account, the VBR must be in the Unconfirmed state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVirtualBorderRouter	The operation that you want to perform. Set the value to **DeleteVirtualBorderRouter**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-shanghai	The ID of the region where the VBR is deployed. You can call the DescribeRegions operation to query region IDs.
VbrId	String	Yes	vbr-bp12mw1f8k3jgygk9****	The ID of the VBR.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F8BF7D24-F3EB-4E23-9208-B77C6EB78E75	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeleteVirtualBorderRouter
&RegionId=cn-shanghai
&VbrId=vbr-bp12mw1f8k3jgygk9****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVirtualBorderRouterResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteVirtualBorderRouterResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVbrId.NotFound	The specified VirutalBorderRouter does not exist in our records.	The error message returned because the specified vRouter does not exist. Check whether the ID of the VBR is valid.
400	InvalidOperation.RouterInterfaceNotDeleted	The specified VirutalBorderRouter still has routerInterface.	The error message returned because the VBR is associated with router interfaces.
400	InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state.	The error message returned because the state of the VBR is invalid. Check the state of the VBR.
403	Forbidden.OperationNotAllowedByUser	The caller is not allowed to delete the specified VirtualBorderRouter.	The error message returned because you are not allowed to delete the VBR.
403	Forbidden.MultiVlanRi	Multiple vlan router interfaces are found.	The error message returned because multiple VLAN router interfaces exist.
403	Forbidden.NoRiFound	No vlan router interfaces are found.	The error message returned because no VLAN router interface is available.
400	InvalidStatus.NotAllowed	The virtual border has been associated by physicalConnection.	The error message returned because the VBR is associated with a physical connection.

15.1.2.1.12.3. DescribeVirtualBorderRouters

Queries virtual border routers (VBRs) that you have created.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVirtualBorderRouters	The operation that you want to perform. Set the value to**DescribeVirtualBorderRouters**.
RegionId	String	Yes	cn-shanghai	The ID of the region where the VBR is deployed. You can call the DescribeRegions operation to query region IDs.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
Filter.N.Key	String	No	1	The key of filter condition N. Valid values of N:**1 to 5**. Valid values of filter conditions: • **PhysicalConnectionId**: Filter by physical connection ID. • **VbrId**: Filter by VBR ID. • **Status**: Filter by VBR status. • **Name**: Filter by VBR name. • **AccessPointId**: Filter by access point ID. • • **type**: Filter by physical connection type.
Filter.N.Value.N	RepeatList	No	1	The value of filter condition N. Valid values of N:**1 to 5**.

Response parameters

Parameter	Type	Example	Description
VirtualBorderRouterSet	Array of VirtualBorderRouterType		The information about the queried VBR.
VirtualBorderRouterType			
AccessPointId	String	ap-cn-kojok1xxxxxxxx	The ID of the access point that is associated with the physical connection.
ActivationTime	String	2017-06-08T12:20:55	The first time when the VBR was activated.

Parameter	Type	Example	Description
AssociatedCens	Array of AssociatedCen		Cloud Enterprise Network (CEN).
AssociatedCen			
CenId	String	cen-kojok19xxxxxxxx	The ID of the CEN instance.
CenOwnerId	Long	1086496381294461	The user ID (UID) of the Apsara Stack tenant account to which the CEN instance belongs.
CenStatus	String	Attached	The status of the CEN instance.
AssociatedPhysicalConnections	Array of AssociatedPhysicalConnection		The associated physical connection.
AssociatedPhysicalConnection			
CircuitCode	String	12	The circuit code of the Internet service provider (ISP) that corresponds to the router interface of the VBR.
EnableIpv6	Boolean	false	
LocalGatewayIp	String	116.62.xx.xx	The IP address of the on-premises router interface of the VBR.
LocalIpv6GatewayIp	String	2408:****:cc:400::*	
PeerGatewayIp	String	116.62.xx.xx	The IP address of the peer router interface of the VBR.
PeerIpv6GatewayIp	String	2408:****:cc:400::*	
PeeringIpv6SubnetMask	String	2408:****:cc:400::/*	
PeeringSubnetMask	String	255.255.255.252	The subnet mask of the connection between the on-premises router interface and the peer router interface of the VBR.

Parameter	Type	Example	Description
PhysicalConnectionBusinessStatus	String	Normal	The business status of the physical connection.
PhysicalConnectionId	String	pc-119mfjzm7xxxxxxxx	The ID of the physical connection.
PhysicalConnectionOwnerUid	String	qfrgrgs	The UID of the Apsara Stack tenant account to which the physical connection belongs.
PhysicalConnectionStatus	String	Normal	The status of the physical connection.
Status	String	Active	
VlanId	String	0	The VLAN ID of the VBR.
VlanInterfaceId	String	ri-kojok19x3j0q6kxxxxxxxxx	The ID of the router interface of the VBR. This ID can be used as the next hop of a route entry of the VBR.
CircuitCode	String	longtel001	The circuit code provided by the ISP for the physical connection.
CreationTime	String	2017-06-08T12:20:55	The time when the VBR was created.
Description	String	VBR	The description of the VBR.
DetectMultiplier	Long	3	The multiple of the detection time. This value indicates the maximum number of dropped packets that is allowed by the receiver when the sender transmits packets. This value can be used to check whether the connection functions as expected. Valid values:**3 to 10**.
EccId	String	ecc-h*********	
EnableIpv6	Boolean	false	
LocalGatewayIp	String	116.62.**. **	The IP address configured on the Apsara Stack side.

Parameter	Type	Example	Description
LocalIpv6GatewayIp	String	2408:****:cc:400::*	
MinRxInterval	Long	100	The time interval to receive Bidirectional Forwarding Detection (BFD) packets. Valid values: 200 to 1000. Unit: milliseconds.
MinTxInterval	Long	100	The time interval to send BFD packets. Valid values: 200 to 1000. Unit: milliseconds.
Name	String	test	The name of the VBR.
PConnVbrExpireTime	String	2017-06-08T12:20:55	The time when the VBR expires.
PeerGatewayIp	String	116.62.**. **	The IP address configured on the user side.
PeerIpv6GatewayIp	String	2408:****:cc:400::*	
PeeringIpv6SubnetMask	String	2408:****:cc:400::/*	
PeeringSubnetMask	String	255.255.255.252	The subnet mask of the connection between the Apsara Stack-side IP address and the user-side IP address.
PhysicalConnectionBusinessStatus	String	Normal	The service status of the physical connection.
PhysicalConnectionId	String	pc-119mfjzm7x******	The ID of the physical connection to which the VBR connects.
PhysicalConnectionOwnerUid	String	usdgbh123f******	The UID of the Apsara Stack tenant account to which the physical connection belongs.
PhysicalConnectionStatus	String	Normal	The status of the physical connection.
RecoveryTime	String	2017-06-08T12:20:55	The last time when the VBR was recovered from the Terminated state to the Active state.

Parameter	Type	Example	Description
RouteTableId	String	rtb-bp1nxxxxxxxx*******	The ID of the route table of the VBR.
Status	String	active	The status of the physical connection. Valid values: • **Initial**: Application is being reviewed. • **Approved**: Application is approved. • **Allocating**: Resources are being allocated. • **Allocated**: The leased line is under construction. • **Confirmed**: waiting for user confirmation. • **Enabled**: The physical connection is enabled. • **Rejected**: The application is rejected. • **Canceled**: The application is canceled. • **Allocation Failed**: The system failed to allocate resources. • **Terminated**: The physical connection is terminated.
TerminationTime	String	2017-06-08T12:20:55	The last time when the VBR was terminated.
Type	String	ecc	The type of the physical connection.
VbrId	String	vbr-kojok19xx******	The ID of the VBR.
VlanId	Integer	10	The VLAN ID of the VBR.
VlanInterfaceId	String	ri-2zeo3xzyf38r4xx********	The ID of the router interface of the VBR.
TotalCount	Integer	1	The total number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.

Parameter	Type	Example	Description
RequestId	String	DE77A7F3-3B74-41C0-A5BC-CAFD188C28B6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribeVirtualBorderRouters
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVirtualBorderRoutersResponse>
          <RequestId>AE65530E-8436-4FB1-8217-DCD35712AC89</RequestId>
          <PageNumber>1</PageNumber>
          <VirtualBorderRouterSet>
                <VirtualBorderRouterType>
                      <LocalGatewayIp>10.1.xx.xx</LocalGatewayIp>
                      <PeerGatewayIp>10.2.xx.xx</PeerGatewayIp>
                      <PhysicalConnectionOwnerUid>123157908XXXXXXXX</PhysicalConnectionOwne
rUid>
                      <VlanId>10</VlanId>
                      <PhysicalConnectionStatus>Enabled</PhysicalConnectionStatus>
                      <PhysicalConnectionId>pc-2zeoaxkq3jotxxxxxxxx</PhysicalConnectionId>
                      <RouteTableId>vtb-2ze9hmd6yofwvxxxxxxxx</RouteTableId>
                      <PeeringSubnetMask>255.0.0.0</PeeringSubnetMask>
                      <CreationTime>2018-03-06T11:16:34Z</CreationTime>
                      <ActivationTime>2018-03-06T11:16:34Z</ActivationTime>
                      <Status>active</Status>
                      <PhysicalConnectionBusinessStatus>Normal</PhysicalConnectionBusinessS
tatus>
                      <VlanInterfaceId>ri-2zeum6rgu0586xxxxxxxx</VlanInterfaceId>
                      <AccessPointId>ap-cn-beijing-dx-A</AccessPointId>
                      <VbrId>vbr-2zecmmvg5gxxxxxxxx</VbrId>
                </VirtualBorderRouterType>
          </VirtualBorderRouterSet>
          <TotalCount>1</TotalCount>
          <PageSize>10</PageSize>
</DescribeVirtualBorderRoutersResponse>
```

`JSON` format

```
{
    "DescribeVirtualBorderRoutersResponse": {
        "RequestId": "AE65530E-8436-4FB1-8217-DCD35712AC89",
        "PageNumber": "1",
        "VirtualBorderRouterSet": {
            "VirtualBorderRouterType": {
                "LocalGatewayIp": "10.1.xx.xx",
                "PeerGatewayIp": "10.2.xx.xx",
                "PhysicalConnectionOwnerUid": "123157908XXXXXXXX",
                "VlanId": "10",
                "PhysicalConnectionStatus": "Enabled",
                "PhysicalConnectionId": "pc-2zeoaxkq3jotxxxxxxxx",
                "RouteTableId": "vtb-2ze9hmd6yofwvxxxxxxxx",
                "PeeringSubnetMask": "255.0.0.0",
                "CreationTime": "2018-03-06T11:16:34Z",
                "ActivationTime": "2018-03-06T11:16:34Z",
                "Status": "active",
                "PhysicalConnectionBusinessStatus": "Normal",
                "VlanInterfaceId": "ri-2zeum6rgu0586xxxxxxxx",
                "AccessPointId": "ap-cn-beijing-dx-A",
                "VbrId": "vbr-2zecmmvg5gxxxxxxxx"
            }
        },
        "TotalCount": "1",
        "PageSize": "10"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	The error message returned because Filter.X.key is not supported.

15.1.2.1.12.4. TerminateVirtualBorderRouter

Disables a virtual border router (VBR).

After you call this operation, the state of the VBR changes from **Enabled** to **Terminating**. After the VBR is disabled, its state changes to **Terminated**.

> **Note** Only the owner of the physical connection to which the VBR connects can call this operation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	TerminateVirtualBorderRouter	The operation that you want to perform. Set the value to **TerminateVirtualBorderRouter**.
RegionId	String	Yes	cn-shanghai	The region where the VBR is deployed. You can call the DescribeRegions operation to query the most recent region list.
VbrId	String	Yes	vbr-bp15zckdt37pq72****	The ID of the VBR that you want to disable.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-00****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=TerminateVirtualBorderRouter
&RegionId=cn-shanghai
&VbrId=vbr-bp15zckdt37pq72****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TerminateVirtualBorderRouterResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</TerminateVirtualBorderRouterResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVbrId.NotFound	The specified VirutalBorderRouter is not found.	The error message returned because the specified VBR does not exist. Check whether the specified VBR ID is valid.
400	InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state.	The error message returned because the state of the specified VBR is invalid. Check the state of the VBR.
403	Forbidden.OperationTerminateNotAllowedByUser	The caller is not allowed to terminate the specified VirtualBorderRouter.	The error message returned because you are not authorized to disable the specified VBR.

15.1.2.1.12.5. RecoverVirtualBorderRouter

Enables a disabled VBR.

After you call the operation, the state of the VBR changes from **Terminated** to **Recovering**. When the VBR is enabled, its state changes to **Enabled**.

When you call this operation, take note of the following items:

- Only the owner of the physical connection can call this operation.
- The physical connection to which the VBR belongs must be in the **Enabled** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RecoverVirtualBorderRouter	The operation that you want to perform. Set the value to **RecoverVirtualBorderRouter**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-shanghai	The ID of the region where the VBR is deployed. You can call the DescribeRegions operation to query region IDs.
VbrId	String	Yes	vbr-bp1lhl0taikrte****	The ID of the VBR.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=RecoverVirtualBorderRouter
&RegionId=cn-shanghai
&VbrId=vbr-bp1lhl0taikrte****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<RecoverVirtualBorderRouterResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</RecoverVirtualBorderRouterResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVbrId.NotFound	The specified VirutalBorderRouter is not found.	The error message returned because the specified VBR does not exist. Check whether the parameter is set to a valid value.
400	InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state	The error message returned because the status of the VBR interface is invalid.
400	OperationFailed.VlanIdAlreadyInUse	The specifed vlanId has been used.	The error message returned because the VLAN interface is being used.
403	Forbidden.OperationRecoverNotAllowedByUser	The caller is not allowed to recover the specified VirtualBorderRouter.	The error message returned because you do not have the permissions to recover the VBR.

15.1.2.1.12.6. UnassociatePhysicalConnectionFromVirtualBorderRouter

Disassociates a virtual border router (VBR) from a physical connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociatePhysicalConnectionFromVirtualBorderRouter	The operation that you want to perform. Set the value to**UnassociatePhysicalConnectionFromVirtualBorderRouter**.
PhysicalConnectionId	String	Yes	pc-bp1qrb3044eqixog****	The ID of the physical connection.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the physical connection is deployed.

Parameter	Type	Required	Example	Description
VbrId	String	Yes	vbr-bp16ksp61j7e0tkn*****	The VLAN ID of the VBR. Valid values: 1 to 2999. **Note** Only the owner of the physical connection can set this parameter. The VLAN IDs of two VBRs of the same physical connection must be different.
ClientToken	String	No	longtel001	The circuit code provided by the Internet service provider (ISP) of the physical connection. **Note** Only the owner of the physical connection can set this parameter.

Response parameters

Parameter	Type	Example	Description
RequestId	String	980960B0-2969-40BF-8542-EBB34FD358AB	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=UnassociatePhysicalConnectionFromVirtualBorderRouter
&PhysicalConnectionId=pc-bp1qrb3044eqixog****
&RegionId=cn-hangzhou
&VbrId=vbr-bp16ksp61j7e0tkn*****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociatePhysicalConnectionFromVirtualBorderRouterResponse>
      <RequestId>980960B0-2969-40BF-8542-EBB34FD358AB</RequestId>
    </UnassociatePhysicalConnectionFromVirtualBorderRouterResponse>
```

`JSON` format

```
{
    "RequestId": "980960B0-2969-40BF-8542-EBB34FD358AB"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidVbrId.NotFound	The specified VirutalBorderRouter does not exist in our records.	The error message returned because the specified VBR does not exist. Check whether the parameter is set to a valid value.
404	InvalidVbrId.NotFound	The specified VirutalBorderRouter or PhysicalConnection does not exist in our records.	The error message returned because the VBR or physical connection does not exist.
400	PARAMETER_MUST_NOT_NULL	The specified physical connection id or vbrId must not be null.	The error message returned because the VbrId and PhysicalConnectionId parameters are not set.
400	PHYSICAL_NOT_ASSOCIATE_TO_VBR	The specified PhysicalConnection have not associate to the vbr.	The error message returned because no VBR is created for the physical connection.
400	ROUTER_INTERFACE_REFERED_BY_ROUTEENTRY	The specified VlanInterface has been used by routeEntry.	The error message returned because the VLAN interface is being used by a route entry.
400	InvalidStatus.NotAllowed	Invalid virtual border router status.	The error message returned because the status of the VBR is invalid.
400	PHYSICAL_NOT_ALLOW_ASSOCIATE_VBR	The specified operation not allow.	The error message returned because the physical connection is associated with a VBR and the operation cannot be performed.

15.1.2.1.13. Physical connections

15.1.2.1.13.1. CancelPhysicalConnection

Cancels a physical connection before it is enabled. After you cancel a physical connection, its state becomes Canceled.

You can cancel only a physical connection that is in the Initial, Approved, Allocated, or Confirmed state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CancelPhysicalConnection	The operation that you want to perform. Set the value to **CancelPhysicalConnection**.
PhysicalConnectionId	String	Yes	pc-119mfjzm7	The ID of the physical connection.
RegionId	String	Yes	cn-shanghai	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CancelPhysicalConnection
&PhysicalConnectionId=pc-119mfjzm7
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CancelPhysicalConnectionResponse>
   <RequestId>BE36E95A-F83E-4127-A29E-F2F35D4C999A</RequestId>
    </CancelPhysicalConnectionResponse>
```

`JSON` format

```
{
    "RequestId": "BE36E95A-F83E-4127-A29E-F2F35D4C999A"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the specified physical connection does not exist.
400	Forbidden.NotAllowedInState	The request does not allow in this state.	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.13.2. DescribePhysicalConnections

Queries physical connections in a region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribePhysicalConnections	The operation that you want to perform. Set the value to **DescribePhysicalConnections** .
RegionId	String	Yes	cn-hangzhou	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
PageNumber	Integer	No	10	The number of the page to return. Default value: 1.
PageSize	Integer	No	1	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Parameter	Type	Required	Example	Description
Filter.N.Key	String	No	1	The filter condition. Valid values of N: 1, 2, 3, 4, and 5. The following filter conditions are supported: • **PhysicalConnectionId**: the ID of the physical connection. • **AccessPointId**: the ID of the access point. • **Type**: the type of the physical connection. • **LineOperator**: the Internet service provider (ISP) of the physical connection. • **Spec**: the specifications of the physical connection. • **Status**: the status of the physical connection. • **Name**: the name of the physical connection. The logical operator between multiple values in a filter condition is OR. In this case, the filter condition is met if one of the values is met. The logical operator between filter conditions is AND. In this case, the result is returned only when all conditions are met.
Filter.N.Value.N	RepeatList	No	1	The value of the filter condition. Valid values of N: **1 to 5**.
IncludeReservationData	Boolean	No	false	Specifies whether to return the orders that have not taken effect. Valid values: **true and false**. • **true**: returns the orders that have not taken effect. • **false**: does not return the orders that have not taken effect.

Parameter	Type	Required	Example	Description
ClientToken	String	No	23243242rggy****	A unique token generated by the client to ensure the idempotency of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
PhysicalConnectionSet	Array of PhysicalConnectionType		The description of the physical connection.
PhysicalConnectionType			
AccessPointId	String	eip-2zeerraiwb7uj6i0********	The ID of the access point.
AdLocation	String	Room Ax-x Bxx, building xx, xxx Avenue, Nanshan District, Shenzhen, Guangdong	The geographical location of the access device.
Bandwidth	Long	10	The bandwidth of the physical connection.
BusinessStatus	String	Normal	The payment state of the physical connection. Valid values: • **Normal**: The physical connection is functioning as expected. • **FinancialLocked**: The physical connection is locked due to overdue payments. • **SecurityLocked**: The physical connection is locked due to security reasons.
ChargeType	String	Prepaid	The billing method. Valid values: • **Prepaid**: subscription.
CircuitCode	String	longtel001	The circuit code provided by the ISP.

Parameter	Type	Example	Description
CreationTime	String	2017-06-08T12:20:55	The time when the physical connection was created.
Description	String	The physical connection	The description of the physical connection.
EnabledTime	String	2017-06-08T12:20:55	The time when the physical connection was created.
EndTime	String	2019-02-25T11:01:04Z	The time when the physical connection expires.
HasReservationData	String	true	Indicates whether you have subscription messages. Valid values: **true and false**. • **true** : yes. • **false**: no.
LineOperator	String	CT	The ISP of the physical connection. Valid values: • CT: China Telecom. • CU: China Unicom. • CM: China Mobile. • CO: other ISPs in China. • Equinix: Equinix. • Other: Other ISPs outside China.
LoaStatus	String	Available	The status of the LOA.
Name	String	name	The name of the physical connection.
PeerLocation	String	Building XX, XX Avenue, XX District, Hangzhou, Zhejiang	The geographical location of the data center.
PhysicalConnectionId	String	pc-119mfjzm*****	The ID of the physical connection.
PortNumber	String	80	The port number of the access device.

Parameter	Type	Example	Description
PortType	String	1000Base-T	The port type of the physical connection. Valid values: • **100Base-T**: 100M copper port. • **1000Base-T** (default): GE electrical port. • **1000Base-LX**: GE single-mode fiber port (10 kilometers). • **10GBase-T**: 10GE electrical port. • **10GBase-LR**: 10GE single-mode optical port (10 kilometers).
RedundantPhysicalConnectionId	String	pc-119mfjzm*******	The ID of the backup physical connection.
ReservationActiveTime	String	2019-02-25T11:01:04Z	The time when the renewal takes effect.
ReservationInternetChargeType	String	PayByBandwidth	The renewal type.
ReservationOrderType	String	RENEW	The type of the renewal order.
Spec	String	Large	The specifications of the physical connection.
Status	String	Initial	The state of the physical connection. Valid values: • **Initial**: application in progress. • **Approved**: approved. • **Allocating**: resource allocation in progress. • **Allocated**: under construction. • **Confirmed**: waiting for user confirmation. • **Enabled**: enabled. • **Rejected**: rejected. • **Canceled**: canceled. • **Allocation Failed**: resource allocation failed. • **Terminated**: terminated.
Type	String	VPC	The type of the physical connection. Default value: **VPC**.

Parameter	Type	Example	Description
TotalCount	Integer	10	The total number of entries returned.
PageNumber	Integer	10	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	EEC8EAB1-F299-4F5C-8E54-0A3129164C27	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribePhysicalConnections
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribePhysicalConnectionsResponse>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
   <PageSize>10</PageSize>
   <RequestId>7C07B0AF-4FC0-4BB2-9667-F75812824BCD</RequestId>
   <PhysicalConnectionSet>
      <PhysicalConnectionType>
         <Type>VPC</Type>
         <PhysicalConnectionId>pc-2zeoaxkq3jot5p71qcnuy</PhysicalConnectionId>
         <PeerLocation>XXX-XX District--XXX Road </PeerLocation>
         <CreationTime>2017-12-13T02:28:42Z</CreationTime>
         <Name>TEST</Name>
         <Status>Enabled</Status>
         <AdLocation>XXX--XX-XXX Datacenter XX Server Rack XXU</AdLocation>
         <EnabledTime>2017-12-18T04:01:30Z</EnabledTime>
         <BusinessStatus>Normal</BusinessStatus>
         <LineOperator>CT</LineOperator>
         <PortNumber>1/1/4</PortNumber>
         <AccessPointId>ap-cn-beijing-dx-A</AccessPointId>
         <PortType>100Base-T</PortType>
         <Bandwidth>2</Bandwidth>
      </PhysicalConnectionType>
   </PhysicalConnectionSet>
</DescribePhysicalConnectionsResponse>
```

`JSON` format

```
{
  "PageNumber": 1,
  "TotalCount": 1,
  "PageSize": 10,
  "RequestId": "7C07B0AF-4FC0-4BB2-9667-F75812824BCD",
  "PhysicalConnectionSet": {
    "PhysicalConnectionType": [
      {
        "Type": "VPC",
        "PhysicalConnectionId": "pc-2zeoaxkq3jot5p71qcnuy",
        "PeerLocation": "XXX-XX District--XXX Road",
        "CreationTime": "2017-12-13T02:28:42Z",
        "Name": "TEST",
        "Status": "Enabled",
        "AdLocation": "XXX--XX-XXX Datacenter XX Server Rack XXU",
        "EnabledTime": "2017-12-18T04:01:30Z",
        "BusinessStatus": "Normal",
        "LineOperator": "CT",
        "PortNumber": "1/1/4",
        "AccessPointId": "ap-cn-beijing-dx-A",
        "PortType": "100Base-T",
        "Bandwidth": 2
      }
    ]
  }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	The error message returned because Filter.X.key is not supported.

15.1.2.1.13.3. ModifyPhysicalConnectionAttribute

Modifies the configuration of a physical connection.

When you call this operation, take note of the following limits:

- You can only modify the configuration of a physical connection that is in the **Initial**, **Enabled**, or **Rejected** state.
- You cannot modify the configurations of a physical connection that is in the **Canceled**, **Allocating**, **AllocationFailed**, or **Terminated** state.
- After you modify the configurations of a physical connection that is in the **Rejected** state, its state becomes **Initial**.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyPhysicalConnectionAttribute	The operation that you want to perform. Set the value to **ModifyPhysicalConnectionAttribute**.
PhysicalConnectionId	String	Yes	pc-119mfjzm******	The ID of the physical connection.
RegionId	String	Yes	cn-shanghai	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
LineOperator	String	No	CT	The Internet service provider (ISP). Valid values: • CT: China Telecom • CU: China Unicom • CM: China Mobile • CO: other ISPs in China • Equinix: Equinix • Other: other ISPs outside China
bandwidth	Integer	No	5	The bandwidth of the physical connection. Unit: Mbit/s. Valid values: 2 to 10240.
PeerLocation	String	No	Building XX, XX Avenue, XX District, Hangzhou, Zhejiang	The geographical location of the data center.

Parameter	Type	Required	Example	Description
PortType	String	No	1000Base-LX	The port type of the physical connection. Default value: 1000Base-T. Valid values: • 100Base-T: a copper port that supports 100 Mbit/s. • 1000Base-T: a copper port that supports 1,000 Mbit/s. • 1000Base-LX: a single-mode fiber port that supports 1,000 Mbit/s (10 kilometers). • 10GBase-T: a copper port that supports 10,000 Mbit/s. • 10GBase-LR: a single-mode fiber port that supports 10,000 Mbit/s (10 kilometers).
RedundantPhysicalConnectionId	String	No	pc-119mfjzm7	The ID of the standby physical connection. The standby physical connection must be in the **Allocated**, **Confirmed**, or **Enabled** state.
Description	String	No	The description of the physical connection	The description of the physical connection. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.
Name	String	No	The name of the physical connection	The name of the physical connection. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). The name cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
ClientToken	String	No	efefe566754h	The client token that is used to guarantee the idempotency of the request. You can use the client to generate a token, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
CircuitCode	String	No	longtel001	The circuit code provided by the ISP for the physical connection.

Response parameters

Parameter	Type	Example	Description
RequestId	String	013EE132-A109-4247-91B0-099A8FF49AD7	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyPhysicalConnectionAttribute
&PhysicalConnectionId=pc-119mfjzm******
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyPhysicalConnectionAttributeResponse>
      <RequestId>8A6A5EC5-6F6C-4906-9689-56ACE58A13E0</RequestId>
</ModifyPhysicalConnectionAttributeResponse>
```

`JSON` format

```
{
  "RequestId": "8A6A5EC5-6F6C-4906-9689-56ACE58A13E0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the physical connection does not exist.
400	InvalidLineOperator.Malformd	The LineOperator provided was invalid.	The error message returned because the value of the LineOperator parameter is invalid.
400	InvalidPeerLocation.Malformd	The PeerLocation provided was invalid.	The error message returned because the value of the PeerLocation parameter is invalid.
400	InvalidPortType.Malformd	The PortType provided was invalid.	The error message returned because the type of the port is invalid.
400	InvalidDescription.Malformed	The specifid ? Description? is not valid.	The error message returned because the format of the resource description is invalid. The value must be 2 to 256 characters in length and cannot start with http:// or https://.
400	InvalidName.Malformed	The specified ? Name? is not valid.	The error message returned because the format of the name is invalid.
400	InvalidStatus	invalid physical connection status.	The error message returned because the state of the specified physical connection is invalid.
400	InvalidBandwidth	invalid physical connection banwidth.	The error message returned because the maximum bandwidth of the physical connection is invalid.
400	InvalidRedundantPhysicalConnection	redundant physical connection doesn't belong to current user.	The error message returned because the backup connection does not belong to your Apsara Stack tenant account.
400	InvalidRedundantPhysicalConnectionStatus	invalid redundant physical connection status.	The error message returned because the state of the backup physical connection is invalid.
400	InvalidCircuitCode.Malformed	circuitCode is illegal.	The error message returned because the value of the CircuitCode parameter is invalid.

15.1.2.1.13.4. TerminatePhysicalConnection

Terminates a physical connection after it is enabled.

After you call this operation, the state of the physical connection becomes Terminating. After the physical connection is terminated, its state becomes Terminated.

When you call this operation, take note of the following limits:

- You can only terminate a physical connection in the **Enabled** state.
- Before you terminate a physical connection, you must delete the virtual border routers (VBRs) that are associated with it.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	TerminatePhysicalConnection	The operation that you want to perform. Set the value to **TerminatePhysicalConnection**.
PhysicalConnectionId	String	Yes	pc-119mfjzm****	The ID of the physical connection.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=TerminatePhysicalConnection
&PhysicalConnectionId=pc-119mfjzm****
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<TerminatePhysicalConnectionResponse>
    <RequestId>513E0A50-4F2D-4CBE-BF35-40559DF65D79</RequestId>
</TerminatePhysicalConnectionResponse>
```

`JSON` format

```
{
  "RequestId": "513E0A50-4F2D-4CBE-BF35-40559DF65D79"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the physical connection does not exist.
400	Forbidden.NotAllowedInState	The request does not allow in this state.	The error message returned because the state is invalid.

15.1.2.1.13.5. EnablePhysicalConnection

Enables a physical connection that is in the Confirmed state. After you enable the physical connection, its state becomes Enabled.

When you call this operation, take note of the following limits:

- You can enable only a physical connection that is in the **Confirmed** state.
- After a physical connection is enabled, its state becomes **Enabled**.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EnablePhysicalConnection	The operation that you want to perform. Set the value to **EnablePhysicalConnection**.

Parameter	Type	Required	Example	Description
PhysicalConnectionId	String	Yes	pc-119mfjz****	The ID of the physical connection.
RegionId	String	Yes	cn-shanghai	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to guarantee the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	API-20365164-5b0d-460a-83c2-2189972b3349	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=EnablePhysicalConnection
&PhysicalConnectionId=pc-119mfjz****
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<EnablePhysicalConnectionResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</EnablePhysicalConnectionResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the specified physical connection does not exist.
400	Forbidden.NotAllowedInState	The request does not allow in this state.	The error message returned because the state is invalid and the operation cannot be performed.

15.1.2.1.13.6. DeletePhysicalConnection

Deletes a physical connection.

> **Note** You can delete only physical connections that are in the following states:**Rejected**,**Canceled**,**AllocationFailed**, and**Terminated**.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeletePhysicalConnection	The operation that you want to perform. Set the value to **DeletePhysicalConnection**.
PhysicalConnectionId	String	Yes	pc-119mfjzm7********	The ID of the physical connection.
RegionId	String	Yes	cn-shanghai	The ID of the region where the physical connection is deployed. You can call the DescribeRegions operation to query region IDs.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2B3670CD-670E-4540-8C13-6DE929AEDD3B	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DeletePhysicalConnection
&PhysicalConnectionId=pc-119mfjzm7*********
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeletePhysicalConnectionResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeletePhysicalConnectionResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the specified physical connection does not exist.
400	Forbidden.NotAllowedInState	The request does not allow in this state.	The error message returned because the state is invalid and the operation cannot be performed.
400	InvalidPhysicalConnectionId.NotMatched	instance id not matched.	The error message returned because the instance ID does not match.
400	Forbidden.VBRExists	physical connection owner's vbr still exists.	The error message returned because the virtual border router (VBR) of the physical connection still exists.

HttpCode	Error code	Error message	Description
400	Forbidden.VBRExists	vbr owner's vbr still exists.	The error message returned because the VBR still exists.
400	Forbidden.AssociateToVBR	The physical connection still associate to VBR.	The error message returned because the physical connection is already associated with a VBR.

15.1.2.1.13.7. CreatePhysicalConnectionOccupancyOrder

Creates an order for resource occupation of one or more physical connections.

Note You can perform this operation only for a physical connection that is in the **Complete** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreatePhysicalConnectionOccupancyOrder	The operation that you want to perform. Set the value to **CreatePhysicalConnectionOccupancyOrder**.
PhysicalConnectionId	String	Yes	pc-bp1hp0wr072f6********	The ID of the physical connection.
RegionId	String	Yes	cn-hangzhou	The region where the physical connection is deployed.
Period	Integer	No	1	The subscription duration.
InstanceChargeType	String	No	PostPaid	The billing method of the physical connection. Valid values: • **PrePaid**: subscription. If you select this billing method, make sure that your Apsara Stack tenant account supports balance payment or credit payment. • **PostPaid**: pay-as-you-go. This is the default value.

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	true	Specifies whether automatic payment is enabled. Valid values: • **true**: enables automatic payment. This is the default value. Make sure that you have sufficient balance in your account. Otherwise, your order becomes invalid and must be canceled. • **false**: An order is generated but no payment is made.
PricingCycle	String	No	Month	The unit of the subscription cycle. • **Year**: by year. • **Month**: by month.
ClientToken	String	No	CBCE910E-D396-4944-8764-B4047838B2D1	The client token that is used for authentication.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9B9300FE-11E2-4E3B-949C-BED3B44DD26D	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreatePhysicalConnectionOccupancyOrder
&PhysicalConnectionId=pc-bp1hp0wr072f6******
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreatePhysicalConnectionOccupancyOrder>
    <RequestId>9B9300FE-11E2-4E3B-949C-BED3B44DD26D</RequestId>
</CreatePhysicalConnectionOccupancyOrder>
```

`JSON` format

```
{
 "RequestId": "9B9300FE-11E2-4E3B-949C-BED3B44DD26D"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	The error message returned because the physical connection does not exist.
400	Forbidden.NotAllowedInState	The request does not allow in this state.	The error message returned because the state is invalid.

15.1.2.1.13.8. ApplyPhysicalConnectionLOA

Requests a letter of authorization (LOA) for a physical connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ApplyPhysicalConnectionLOA	The operation that you want to perform. Set the value to**ApplyPhysicalConnectionLOA**.
CompanyName	String	Yes	company	The name of the customer company that requires the physical connection.
ConstructionTime	String	Yes	2019-02-28T16:00:00.000Z	The time when construction started.
InstanceId	String	Yes	pc-bp1qrb3044eqixxxxxxx	The ID of the physical connection.
LineType	String	Yes	SDH	The type of the physical connection.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the physical connection is deployed.
Si	String	Yes	Alibaba	The construction company.

Parameter	Type	Required	Example	Description
ClientToken	String	No	A47BD386-7FDE-4xxx4-8D22-C62xxxxxxx	Client authentication.
Bandwidth	Integer	No	3	The bandwidth of the physical connection.
PeerLocation	String	No	Hangzhou	The geographical location where the physical connection is deployed.
PMInfo.N.PMName	String	No	Tom	The name of the construction personnel. N is a natural number. Replace N with a value when you call this operation.
PMInfo.N.PMContactInfo	String	No	1320000****	The contact information about the construction personnel. N is a natural number. Replace N with a value when you call this operation.
PMInfo.N.PMCertificateType	String	No	IDCard	The identity type of the construction personnel. N is a natural number. Replace N with a value when you call this operation.
PMInfo.N.PMCertificateNo	String	No	3210xxxxxxxxxxxxx	The identity number of the construction personnel. N is a natural number. Replace N with a value when you call this operation.
PMInfo.N.PMGender	String	No	Male	The gender of the construction personnel. N is a natural number. Replace N with a value when you call this operation.

Response parameters

Parameter	Type	Example	Description
RequestId	String	A47BD386-7FDE-42C4-8D22-C6223D18AA1C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ApplyPhysicalConnectionLOA
&CompanyName=company
&ConstructionTime=2019-02-28T16:00:00.000Z
&InstanceId=pc-bp1qrb3044eqixxxxxxxx
&LineType=SDH
&RegionId=cn-hangzhou
&Si=Alibaba
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ApplyPhysicalConnectionLOAResponse>
      <RequestId>A47BD386-7FDE-42C4-8D22-C6223D18AA1C</RequestId>
    </ApplyPhysicalConnectionLOAResponse>
```

`JSON` format

```
{
    "RequestId":"A47BD386-7FDE-42C4-8D22-C6223D18AA1C"
    }
```

15.1.2.1.13.9. CreatePhysicalConnectionSetupOrder

Creates an order for initial installation of a physical connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreatePhysicalConnectionSetupOrder	The operation that you want to perform. Set the value to**CreatePhysicalConnectionSetupOrder**.
AccessPointId	String	Yes	ap-cn-beijing-ft-A	The ID of the access point.

Parameter	Type	Required	Example	Description
LineOperator	String	Yes	CT	The Internet service provider (ISP). Valid values: • CT: China Telecom. • CU: China Unicom. • CM: China Mobile. • CO: other ISPs in China. • Equinix: Equinix. • Other: other ISPs outside China.
RegionId	String	Yes	cn-shanghai	The region where the physical connection is deployed.
PortType	String	No	100Base-T	The port type of the physical connection. Default value: 1000Base-T. Valid values: • **100Base-T**: a copper port that supports 100 Mbit/s. • **1000Base-T**: a copper port that supports 1,000 Mbit/s. • **1000Base-LX**: a single-mode fiber port that supports 1,000 Mbit/s (10 kilometers). • **10GBase-T**: a copper port that supports 10,000 Mbit/s. • **10GBase-LR**: a single-mode fiber port that supports 10,000 Mbit/s (10 kilometers).
RedundantPhysicalConnectionId	String	No	pc-bp10zsv5ntp**********	The ID of the standby physical connection. The standby physical connection must be in the **Allocated**, **Confirmed**, or **Enabled** state.
AutoPay	Boolean	No	true	Indicates whether automatic payment is enabled. Valid values: **true** and **false**.
ClientToken	String	No	318BB676-0A2B-43A0-9AD8-F1D34E93750F	The client token that is used for authentication.

Response parameters

Parameter	Type	Example	Description
OrderId	String	202844382740728	The ID of the order.
PhysicalConnectionId	String	pc-2zegmc02v7ss4******	The ID of the physical connection.
RequestId	String	F7A6301A-64BA-41EC-8284-8F4838C15D1F	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CreatePhysicalConnectionSetupOrder
&AccessPointId=ap-cn-beijing-ft-A
&LineOperator=CT
&RegionId=cn-shanghai
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreatePhysicalConnectionSetupOrderResponse>
     <OrderId>205226815210296</OrderId>
     <RequestId>76CCB7F1-C141-4BD1-8106-63987D12BEF4</RequestId>
     <PhysicalConnectionId>pc-2zegmc02v7ss4pin******</PhysicalConnectionId>
</CreatePhysicalConnectionSetupOrderResponse>
```

`JSON` format

```
{
    "OrderId": 205226815210296,
    "RequestId": "76CCB7F1-C141-4BD1-8106-63987D12BEF4",
    "PhysicalConnectionId": "pc-2zegmc02v7ss4******"
}
```

15.1.2.1.13.10. CompletePhysicalConnectionLOA

Generates a report for an installed physical connection.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CompletePhysicalConnectionLOA	The operation that you want to perform. Set the value to **CompletePhysicalConnectionLOA**.
InstanceId	String	Yes	pc-bp10tvlhnwkwxxxxxxxxx	The ID of the physical connection.
LineCode	String	Yes	aaa111	The circuit code provided by the Internet service provider (ISP).
LineLabel	String	Yes	bbb222	The label of the cable in the data center.
RegionId	String	Yes	cn-hangzhou	The ID of the region where the physical connection is deployed.
ClientToken	String	No	F8983C74-E068-4509-B442-89xxxxxC8F43B	The client token that is used for authentication.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F8983C74-E068-4509-B442-89BD82C8F43B	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=CompletePhysicalConnectionLOA
&InstanceId=pc-bp10tvlhnwkwxxxxxxxxxx
&LineCode=aaa111
&LineLabel=bbb222
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CompletePhysicalConnectionLOAResponse>
      <code>200</code>
   <message>successful</message>
   <requestId>5FA3B04E-AEA0-4F89-BF0D-3FD71ED69BF7</requestId>
   <success>true</success>
    </CompletePhysicalConnectionLOAResponse>
```

`JSON` format

```
{
    "code":"200",
    "message":"successful",
    "requestId":"5FA3B04E-AEA0-4F89-BF0D-3FD71ED69BF7",
    "success":true
}
```

15.1.2.1.13.11. DescribePhysicalConnectionLOA

Queries letter of authorization (LOA) information about a physical connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribePhysicalConnectionLOA	The operation that you want to perform. Set the value to**DescribePhysicalConnectionLOA**.
InstanceId	String	Yes	pc-bp1ca4wca27ex*****	The ID of the physical connection.
RegionId	String	Yes	cn-hangzhou	The region where the physical connection is deployed.
ClientToken	String	No	318BB676-0A2B-43A0-9AD8-F1D34E93750F	The client token that is used for authentication.

Response parameters

Parameter	Type	Example	Description
PhysicalConnectionLOAType	Struct		The LOA information about the physical connection.

Parameter	Type	Example	Description
CompanyLocalizedName	String	company	The name of the construction company.
CompanyName	String	AppCompany****	The name of the organization that requires the physical connection.
ConstructionTime	String	2019-02-26T08:00:00Z	The time when construction started.
InstanceId	String	pc-bp1ca4wca27******	The ID of the physical connection.
LineCode	String	lincode****	The line code of the Internet service provider (ISP).
LineLabel	String	linetest****	The label of the cable in the data center.
LineType	String	MSTP	The type of the physical connection. Valid values: • **MSTP** • **Other**. • **SDH**. • **MPLSVPN**. • **FIBRE**.
LoaUrl	String	http://******	The download URL of the LOA file.
PMInfo	Array of PMInfo		The information about construction personnel.
PMInfo			
PMCertificateNo	String	engineer****	The identity number of the construction personnel.
PMCertificateType	String	Other	The type of the identity number. Valid values: • IDCard: the national identification number. • Other: other identity numbers. • Passport: the passport number.

Parameter	Type	Example	Description
PMContactInfo	String	18910010******	The phone number of the construction personnel.
PMGender	String	Male	The gender of the construction personnel.
PMName	String	name	The name of the construction personnel.
SI	String	ctcu	The construction company.
Status	String	Available	The state of the physical connection.
RequestId	String	318BB676-0A2B-43A0-9AD8-F1D34E93750F	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=DescribePhysicalConnectionLOA
&InstanceId=pc-bp1ca4wca27e******
&RegionId=cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribePhysicalConnectionLOAResponse>
      <code>200</code>
      <data>
            <companyName>test1234</companyName>
            <constructionTime>2019-02-26T08:00:00Z</constructionTime>
            <instanceId>pc-bp1ca4wca27ert****</instanceId>
            <lineType>MSTP</lineType>
            <loaUrl>http://********</loaUrl>
            <pmInfo>
                  <nextPMIndex>1</nextPMIndex>
                  <pmCertificateNo>12345**</pmCertificateNo>
                  <pmCertificateType>Other</pmCertificateType>
                  <pmContactInfo>189100100**0</pmContactInfo>
                  <pmGender>Male</pmGender>
                  <pmName>test</pmName>
            </pmInfo>
            <si>ctcu</si>
            <status>Available</status>
      </data>
      <message>successful</message>
      <requestId>318BB676-0A2B-43A0-9AD8-F1D34E93750F</requestId>
      <success>true</success>
    </DescribePhysicalConnectionLOAResponse>
```

`JSON` format

```
{
    "code": "200",
    "data": {
        "companyName": "test1234",
        "constructionTime": "2019-02-26T08:00:00Z",
        "instanceId": "pc-bp1ca4wca27erts****",
        "lineType": "MSTP",
        "loaUrl":"http://*******",
        "pmInfo": [
            {
                "nextPMIndex": 1,
                "pmCertificateNo": "1234567",
                "pmCertificateType": "Other",
                "pmContactInfo": "18910010***",
                "pmGender": "Male",
                "pmName": "test"
            }
        ],
        "si": "ctcu",
        "status": "Available"
    },
    "message": "successful",
    "requestId": "318BB676-0A2B-43A0-9AD8-F1D34E93750F",
    "success": true
}
```

15.1.2.1.14. VPN gateways

15.1.2.1.14.1. VPN gateway

CreateVpnGateway

Creates a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnGateway	The operation that you want to perform. Set the value to: **CreateVpnGateway**.
Bandwidth	Integer	Yes	5	The public bandwidth of the VPN gateway. Unit: Mbit/s. Valid values: **5, 10, 20, 50, and 100**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the VPN gateway. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	Yes	vpc-bp1ub1yt9cvakoelj****	The ID of the virtual private cloud (VPC) where the VPN gateway is deployed.
EnableIpsec	Boolean	No	true	Specifies whether to enable the IPsec-VPN feature. Valid values: • **true**: enables the IPsec-VPN feature. • **false**: disables the IPsec-VPN feature. This is the default value.
EnableSsl	Boolean	No	true	Specifies whether to enable the SSL-VPN feature. Valid values: • **true**: enables the SSL-VPN feature. • **false**: disables the SSL-VPN feature. This is the default value.

Parameter	Type	Required	Example	Description
Name	String	No	MYVPN	The name of the VPN gateway. The default value is the ID of the VPN gateway. The name must be 2 to 128 characters in length, and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter, and cannot start with `http://` or `https://`.
SslConnections	Integer	No	5	The maximum number of concurrent connections. Valid values: **5**, **10**, and **20**.
VSwitchId	String	No	vsw-bp1j5miw2bae9s2vt****	The ID of the vSwitch to which the VPN gateway belongs.

Response parameters

Parameter	Type	Example	Description
Name	String	myVpn	The name of the VPN gateway.
RequestId	String	54B48E3D-DF70-471B-AA93-08E683A1B457	The ID of the request.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Examples

Sample requests

```
http(s)://vpc.example.com/?Action=CreateVpnGateway &Bandwidth=5 &RegionId=cn-qingdao-env66-d01 &VpcId=vpc-bp1ub1yt9cvakoelj**** &
```

Sample success responses

`XML` format

```
<CreateVpnGatewayResponse>
      <Name>myVpn</Name>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <RequestId>54B48E3D-DF70-471B-AA93-08E683A1B457</RequestId>
</CreateVpnGatewayResponse>
```

`JSON` format

```
{ "CreateVpnGatewayResponse":{ "Name":"myVpn", "VpnGatewayId":"vpn-bp1q8bgx4xnkm2ogj****",
"RequestId":"54B48E3D-DF70-471B-AA93-08E683A1B457" } }
```

DescribeVpnGateways

Queries one or more VPN gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnGateways	The operation that you want to perform. Set the value to **DescribeVpnGateways**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpcId	String	No	vpc-bp1ub1yt9cvakoelj****	The ID of the virtual private cloud (VPC) to which the VPN gateway belongs.
VpnGatewayId	String	No	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Status	String	No	init	The status of the VPN gateway. Valid values: • **init**: The VPN gateway is being initialized. • **provisioning**: The VPN gateway is being prepared. • **active**: The VPN gateway is running as expected. • **updating**: The VPN gateway is being updated. • **Deleting**: The VPN gateway is being deleted.

Parameter	Type	Required	Example	Description
BusinessStatus	String	No	Normal	The payment status of the VPN gateway. Valid values: • **Normal**: The VPN gateway is running as expected. • **FinancialLocked**: The VPN gateway is locked due to overdue payments.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
VpnGateways	Array of VpnGateway		Detailed information about the VPN gateways.
VpnGateway			
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoelj*****	The ID of the VPC to which the VPN gateway belongs.
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv*****	The ID of the vSwitch to which the VPN gateway is attached.
InternetIp	String	116.XX.XX.69	The public IP address of the VPN gateway.
CreateTime	Long	1515383700000	The timestamp generated when the VPN gateway was created.
EndTime	Long	1518105600000	The timestamp to be generated when the VPN gateway expires.

Parameter	Type	Example	Description
Spec	String	5 Mbps	The maximum bandwidth of the VPN gateway. Unit: Mbit/s.
Name	String	test	The name of the VPN gateway.
Description	String	test	The description of the VPN gateway.
Status	String	active	The status of the VPN gateway.
BusinessStatus	String	Normal	The payment status of the VPN gateway.
ChargeType	String	Prepay	The billing type. Valid value: **PostpayByFlow**.
IpsecVpn	String	enable	Indicates whether the IPsec-VPN feature is enabled. • **enable**: IPsec-VPN is enabled. • **disable** : IPsec-VPN is disabled.
SslMaxConnections	Long	5	The maximum number of concurrent SSL-VPN connections.
SslVpn	String	enable	Indicates whether the SSL-VPN feature is enabled. • **enable**: SSL-VPN is enabled. • **disable** : SSL-VPN is disabled.
Tag	String	1	The tag of the VPN gateway.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on the current page.

Parameter	Type	Example	Description
RequestId	String	DF11D6F6-E35A-41C3-9B20-6FC8A901FE65	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnGateways
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnGatewaysResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <VpnGateways>
            <VpnGateway>
                  <Status>active</Status>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <BusinessStatus>Normal</BusinessStatus>
                  <Spec>5M</Spec>
                  <CreateTime>1492753580000</CreateTime>
                  <InternetIp>116.XX.XX.69</InternetIp>
                  <EndTime>1495382400000</EndTime>
                  <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
                  <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
            </VpnGateway>
      </VpnGateways>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeVpnGatewaysResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "VpnGateways": {
        "VpnGateway": [
            {
                "Status": "active",
                "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
                "BusinessStatus": "Normal",
                "Spec": "5M",
                "CreateTime": 1492753580000,
                "InternetIp": "116.XX.XX.69",
                "EndTime": 1495382400000,
                "VSwitchId": "vsw-bp1y9ovl1cu9ou4tv****",
                "VpcId": "vpc-bp1ub1yt9cvakoelj****"
            }
        ]
    },
    "PageSize": 10,
    "RequestId": "B2CD1315-CA2B-47B1-9DA5-8F1D69C48E82"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

DescribeVpnGateway

Queries the details of a specified VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnGateway	The operation that you want to perform. Set the value to **DescribeVpnGateway**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Response parameters

Parameter	Type	Example	Description
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoelj*****	The ID of the VPC for which the VPN gateway is created.
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv*****	The ID of the vSwitch to which the VPN gateway is attached.
InternetIp	String	116.XX.XX.222	The public IP address of the VPN gateway.
CreateTime	Long	1495382400000	The timestamp generated when the VPN gateway was created.
EndTime	Long	1495382400000	The timestamp to be generated when the VPN gateway expires.
Spec	String	5 M	The maximum bandwidth of the VPN gateway. Unit: Mbit/s.
Name	String	vpngatewayname	The name of the VPN gateway.
Description	String	vpngatewaydescription	The description of the VPN gateway.

Parameter	Type	Example	Description
Status	String	init	The status of the VPN gateway. • **init**: The VPN gateway is being initialized. • **provisioning** : The VPN gateway is being prepared. • **active**: The VPN gateway is running as expected. • **updating**: The VPN gateway is being updated. • **Deleting**: The VPN gateway is being deleted.
BusinessStatus	String	Normal	The payment status of the VPN gateway. • **Normal**: The VPN gateway is running as expected. • **FinancialLocked**: The VPN gateway is locked due to overdue payments.
ChargeType	String	PostpayByFlow	The billing method of the VPN gateway. Valid value: **PostpayByFlow**.
IpsecVpn	String	enable	Indicates whether the IPsec-VPN feature is enabled. • **enable**: IPsec-VPN is enabled. • **disable** : IPsec-VPN is disabled.
RequestId	String	E98A9651-7098-40C7-8F85-C818D1EBBA85	The ID of the request.
SslMaxConnections	Long	5	The maximum number of concurrent SSL-VPN connections.
SslVpn	String	enable	Indicates whether the SSL-VPN feature is enabled. • **enable**: SSL-VPN is enabled. • **disable** : SSL-VPN is disabled.
Tag	String	tag1	The tag of the VPN gateway.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnGateway
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnGatewayResponse>
      <Status>active</Status>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <Spec>5M</Spec>
      <BusinessStatus>Normal</BusinessStatus>
      <RequestId>E98A9651-7098-40C7-8F85-C818D1EBBA85</RequestId>
      <CreateTime>1492753580000</CreateTime>
      <InternetIp>116.XX.XX.222</InternetIp>
      <EndTime>1495382400000</EndTime>
      <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
      <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
</DescribeVpnGatewayResponse>
```

`JSON` format

```
{
    "Status": "active",
    "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
    "BusinessStatus": "Normal",
    "Spec": "5M",
    "CreateTime": 1492753580000,
    "RequestId": "E98A9651-7098-40C7-8F85-C818D1EBBA85",
    "InternetIp": "116.XX.XX.222",
    "EndTime": 1495382400000,
    "VSwitchId": "vsw-bp1y9ovl1cu9ou4tv****",
    "VpcId": "vpc-bp1ub1yt9cvakoelj****"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.

DeleteVpnGateway

Deletes a specified VPN gateway.

Note You cannot delete a VPN gateway that is associated with an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnGateway	The operation that you want to perform. Set the value to **DeleteVpnGateway**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnGateway
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNatGatewayResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteNatGatewayResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
403	ForbiddenRelease	Forbidden to release a prepaid instance within validity period	The error message returned because you cannot release a subscription VPN gateway within the subscription duration.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.Configuring	The specified VPN gateway is being configured.	The error message returned because the VPN gateway is being configured.

ModifyVpnGatewayAttribute

Modifies the name and description of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnGatewayAttribute	The operation that you want to perform. Set the value to **ModifyVpnGatewayAttribute**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the DescribeRegions operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.
Description	String	No	vpngateway	The description of the VPN gateway. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.
Name	String	No	myvpn	The name of the VPN gateway. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoel*****	The ID of the virtual private cloud (VPC) to which the VPN gateway belongs.
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv*****	The ID of the vSwitch to which the VPN gateway belongs.
InternetIp	String	116.XX.XX.69	The public IP address of the VPN gateway.
CreateTime	Long	1492753580000	The timestamp generated when the VPN gateway was created.

Parameter	Type	Example	Description
EndTime	Long	1495382400000	The timestamp to be generated when the VPN gateway expires.
Spec	String	5 Mbps	The specification of the VPN gateway.
Name	String	test	The name of the VPN gateway.
Description	String	test	The description of the VPN gateway.
Status	String	active	The status of the VPN gateway.
IntranetIp	String	172.XX.XX.104	The private IP address of the VPN gateway.
RequestId	String	54B48E3D-DF70-471B-AA93-08E683A1B457	The ID of the request.

Examples

Sample requests

```
https://vpc.example.com/?Action=ModifyVpnGatewayAttribute
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<公共请求参数>
```

Sample success responses

`XML` format

```
<ModifyVpnGatewayAttributeResponse>
      <Name>aaa</Name>
      <Status>active</Status>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <Spec>5M</Spec>
      <CreateTime>1492753580000</CreateTime>
      <IntranetIp>172.XX.XX.104</IntranetIp>
      <RequestId>54B48E3D-DF70-471B-AA93-08E683A1B457</RequestId>
      <InternetIp>116.XX.XX.69</InternetIp>
      <EndTime>1495382400000</EndTime>
      <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
      <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
</ModifyVpnGatewayAttributeResponse>
```

`JSON` format

```
{
 "Name":"aaa",
 "Status":"active",
 "VpnGatewayId":"vpn-bp1q8bgx4xnkm2ogj****",
 "Spec":"5M",
 "RequestId":"BA56EAF8-E3A9-4BE6-8511-8F03512153E2",
 "IntranetIp":"172.XX.XX.104",
 "CreateTime":1492753580000,
 "InternetIp":"116.XX.XX.69",
 "EndTime":1495382400000,
 "VSwitchId":"vsw-bp1y9ovl1cu9ou4tv****",
 "VpcId":"vpc-bp1ub1yt9cvakoelj****"
}
```


15.1.2.1.14.2. Customer gateway

CreateCustomerGateway

Creates a customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateCustomerGateway	The operation that you want to perform. Set the value to **CreateCustomerGateway**.
IpAddress	String	Yes	116.XX.XX.222	The IP address of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the customer gateway. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
Name	String	No	Gateway	The name of the customer gateway. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.
Description	String	No	Gateway	The description of the customer gateway. The description must be 2 to 256 characters in length, and contain digits, hyphens (-), underscores (_), full width periods (。), full width commas (，), and full width colons (：). The description cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1aw0a5nfff03xp1****	The ID of the customer gateway.
IpAddress	String	100.XX.XX.1	The IP address of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
CreateTime	Long	1493363486000	The timestamp generated when the customer gateway was created.
RequestId	String	cgw-bp1aw0a5nfff03xp1pcqc	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateCustomerGateway
&IpAddress=116.XX.XX.222
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateCustomerGatewayResponse>
      <CustomerGatewayId>cgw-bp1aw0a5nfff03xp****</CustomerGatewayId>
      <RequestId>185E81B1-3916-4667-B48F-C52409B33F2B</RequestId>
      <CreateTime>1493363486000</CreateTime>
      <IpAddress>100.XX.XX.1</IpAddress>
</CreateCustomerGatewayResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1jrawp82av6bws9****",
    "CreateTime": 1493363599000,
    "RequestId": "D32B3C26-6C6C-4988-93E9-D2A6444CE6AE",
    "IpAddress": "100.XX.XX.1"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	InvalidIpAddress.AlreadyExist	Specified IpAddress is already exist.	The error message returned because the specified IP address already exists. The IP addresses must be unique in the same region.
400	InvalidIpAddress.WrongFormat	Specified IpAddress is invalid.	The error message returned because the specified IP address is invalid.

HttpCode	Error code	Error message	Description
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	InvalidDescription	The description is not valid	The error message returned because the description format of the specified parameter is invalid.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.

DescribeCustomerGateways

Queries customer gateways in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCustomerGateways	The operation that you want to perform. Set the value to **DescribeCustomerGateways**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateways are created. You can call the `DescribeRegions` operation to query the most recent region list.
CustomerGatewayId	String	No	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
CustomerGateways	Array of CustomerGateway		Detailed information about the customer gateways.
CustomerGateway			
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.55	The IP address of the customer gateway.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeCustomerGateways
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeCustomerGatewaysResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
      <CustomerGateways>
            <CustomerGateway>
                  <Name>test</Name>
                  <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
                  <CreateTime>1492747187000</CreateTime>
                  <IpAddress>139.XX.XX.55</IpAddress>
            </CustomerGateway>
      </CustomerGateways>
</DescribeCustomerGatewaysResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "E82612A9-CB90-4D7E-B394-1DB7F6509B29",
    "CustomerGateways": {
        "CustomerGateway": [
            {
                "Name": "test",
                "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
                "CreateTime": 1492747187000,
                "IpAddress": "139.XX.XX.55"
            }
        ]
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

DescribeCustomerGateway

Queries details of a specified customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCustomerGateway	The operation that you want to perform. Set the value to **DescribeCustomerGateway**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.32	The IP address of the customer gateway.
RequestId	String	99506ECB-218F-45A5-AE8E-79518451F615	The ID of the request.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeCustomerGateway
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeCustomerGatewayResponse>
      <Name>test</Name>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <CreateTime>1492747187000</CreateTime>
      <RequestId>99506ECB-218F-45A5-AE8E-79518451F615</RequestId>
      <IpAddress>139.XX.XX.32</IpAddress>
</DescribeCustomerGatewayResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "Name": "test",
    "RequestId": "A0457BC9-6C0F-4437-AB9D-FB2EABC1D6A2",
    "CreateTime": 1492747187000,
    "IpAddress": "139.XX.XX.32"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.

DeleteCustomerGateway

Deletes a specified customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteCustomerGateway	The operation that you want to perform. Set the value to **DeleteCustomerGateway**.
CustomerGatewayId	String	Yes	cgw-2zllmw9lqrcdis3bd****	The ID of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteCustomerGateway
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteCustomerGatewayResesponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteCustomerGatewayResesponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.

ModifyCustomerGatewayAttribute

Modifies the name and description of a customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyCustomerGatewayAttribute	The operation that you want to perform. Set the value to **ModifyCustomerGatewayAttribute**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	test	The name of the customer gateway. The name must be 2 to 128 characters in length, and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name must start with a letter, but cannot start with `http://` or `https://`.
Description	String	No	test	The description of the customer gateway. The description must be 2 to 256 characters in length, and can contain letters, digits, hyphens (-), underscores (_), full width periods (。), full width commas (，), and full width colons (：). The description must start with a letter, but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.
Name	String	test	The name of the customer gateway.

Parameter	Type	Example	Description
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.55	The IP address of the customer gateway.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.
RequestId	String	E61293C8-AF07-4E87-A272-542680038F93	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyCustomerGatewayAttribute
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyCustomerGatewayAttributeResponse>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <RequestId>E61293C8-AF07-4E87-A272-542680038F93</RequestId>
      <CreateTime>1492747187000</CreateTime>
      <IpAddress>139.XX.XX.55</IpAddress>
      <Description>modify</Description>
</ModifyCustomerGatewayAttributeResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "RequestId": "8AA5CE21-2E6A-4530-BDF5-F055849476E6",
    "CreateTime": 1492747187000,
    "IpAddress": "139.XX.XX.55",
    "Description": "modify"
    }
```

Error codes

HttpCode	Error code	Error message	Required

HttpCode	Error code	Error message	Required
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	InvalidDescription	The description is not valid	The error message returned because the format of the specified description is invalid.

15.1.2.1.14.3. Routes for VPN gateways

DeleteVpnPbrRouteEntry

Deletes a policy-based route from a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnPbrRouteEntry	The operation that you want to perform. Set the value to **DeleteVpnPbrRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the policy-based route. Valid values: • **0**: specifies a low priority for the route. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnPbrRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnPbrRouteEntryResponse>
      <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</DeleteVpnPbrRouteEntryResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DeleteVpnRouteEntry

Deletes a destination-based route from a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnRouteEntry	The operation that you want to perform. Set the value to **DeleteVpnRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.

Parameter	Type	Required	Example	Description
Weight	Integer	Yes	0	The weight of the destination-based route. Valid values: • **0:**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnRouteEntryResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</DeleteVpnRouteEntryResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DescribeVpnRouteEntries

Queries destination-based routes of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnRouteEntries	The operation that you want to perform. Set the value to **DescribeVpnRouteEntries**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based routes are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	10	The page number of the returned page.

Parameter	Type	Example	Description
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.
TotalCount	Integer	10	The number of returned entries.
VpnRouteEntries	Array of VpnRouteEntry		The detailed information about the destination-based routes.
VpnRouteEntry			
CreateTime	Long	1492747187000	The timestamp generated when the destination-based route was created.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the destination-based route.
State	String	published	The status of the destination-based route. • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the destination-based route. Valid values: • **0**: indicates that the priority of the route entry is low. • **100**: indicates that the priority of the route entry is high.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnRouteEntries
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnRouteEntriesResponse>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
   <VpnRouteEntries>
      <VpnRouteEntry>
         <RouteDest>10.0.0.0/24</RouteDest>
         <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
         <State>normal</State>
         <Weight>100</Weight>
         <CreateTime>1563874074000</CreateTime>
         <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
      </VpnRouteEntry>
   </VpnRouteEntries>
   <PageSize>10</PageSize>
   <RequestId>BF3995A6-FA4F-4C74-B90F-89ECF4BFF4D5</RequestId>
</DescribeVpnRouteEntriesResponse>
```

`JSON` format

```
{
 "PageNumber": 1,
 "TotalCount": 1,
 "VpnRouteEntries": {
  "VpnRouteEntry": [
   {
    "RouteDest": "10.0.0.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "State": "normal",
    "Weight": 100,
    "CreateTime": 1563874074000,
    "NextHop": "vco-bp1tui07ob10fmuro****"
   }
  ]
 },
 "PageSize": 10,
 "RequestId": "BF3995A6-FA4F-4C74-B90F-89ECF4BFF4D5"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

ModifyVpnRouteEntryWeight

Modifies the weight of a destination-based route for a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnRouteEntryWeight	The operation that you want to perform. Set the value to **ModifyVpnRouteEntryWeight**.
NewWeight	Integer	Yes	100	The new weight you want to set for the destination-based route. • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The current weight of the destination-based route. Valid values: **0** and **100**.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnRouteEntryWeight
&NewWeight=100
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnRouteEntryWeightResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</ModifyVpnRouteEntryWeightResponse>
```

`JSON` format

```
{
    "RequestId": "E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

CreateVpnRouteEntry

Creates a destination-based route on a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnRouteEntry	The operation that you want to perform. Set the value to **CreateVpnRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the destination-based route to the route table of the associated virtual private cloud (VPC). • **true**: advertises the destination-based route to the route table of the associated VPC. • **false**: does not advertise the destination-based route to the route table of the associated VPC.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.

Parameter	Type	Required	Example	Description
Weight	Integer	Yes	0	The weight of the destination-based route. Valid values: • **0**: specifies a low priority for the route. • **100**:specifies a high priority for the route. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Description	String	No	mytest	The description of the destination-based route.
OverlayMode	String	No	Ipsec	The overlay mode.

Response parameters

Parameter	Type	Example	Description
CreateTime	Long	1492747187000	The timestamp generated when the destination-based route was created.
Description	String	mytest	The description of the destination-based route.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
OverlayMode	String	Ipsec	The overlay mode.

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the destination-based route.
State	String	published	The status of the destination-based route. • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the destination-based route. Valid values: **0** and **100**.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnRouteEntryResponse>
   <RouteDest>10.0.0.0/24</RouteDest>
   <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
   <OverlayMode>Ipsec</OverlayMode>
   <State>published</State>
   <Weight>100</Weight>
   <CreateTime>1563873294331</CreateTime>
   <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
      <RequestId>EE4C2417-9437-4333-BDEB-8493F7AA7258</RequestId>
</CreateVpnRouteEntryResponse>
```

`JSON` format

```
{
    "RouteDest": "10.0.0.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "OverlayMode": "Ipsec",
    "State": "published",
    "Weight": 100,
    "CreateTime": 1563873294331,
    "NextHop": "vco-bp1tui07ob10fmuro****",
    "RequestId":"CB2793A8-845F-444C-8E93-76F1BBDF9C78"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

ModifyVpnPbrRouteEntryWeight

Modifies the weight of a policy-based route of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnPbrRouteEntryWeight	The operation that you want to perform. Set the value to **ModifyVpnPbrRouteEntryWeight**.
NewWeight	Integer	Yes	100	The new weight you want to set for the policy-based route. • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The original weight of the policy-based route. Valid values: **0** and **100**.

Parameter	Type	Required	Example	Description
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnPbrRouteEntryWeight
&NewWeight=100
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnPbrRouteEntryWeightResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</ModifyVpnPbrRouteEntryWeightResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DescribeVpnPbrRouteEntries

Queries policy-based routes of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnPbrRouteEntries	The operation that you want to perform. Set the value to **DescribeVpnPbrRouteEntries**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based routes are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
PageNumber	Integer	No	10	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
TotalCount	Integer	12	The number of returned entries.
VpnPbrRouteEntries	Array of VpnPbrRouteEntry		The detailed information about the policy-based routes.
VpnPbrRouteEntry			
CreateTime	Long	1492747187000	The timestamp generated when the policy-based route was created.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.

Parameter	Type	Example	Description
RouteDest	String	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	192.xx.0.0/24	The source CIDR block of the policy-based route.
State	String	published	The status of the policy-based route. Valid values: • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the policy-based route. Valid values: • **0**: indicates that the priority of the route entry is low. • **100**: indicates that the priority of the route entry is high.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnPbrRouteEntries
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnPbrRouteEntriesResponse>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
   <RequestId>E5D94DC7-AEC7-4E73-A203-61B04D1F1160</RequestId>
   <PageSize>10</PageSize>
   <VpnPbrRouteEntries>
      <VpnPbrRouteEntry>
         <RouteDest>10.0.0.0/32</RouteDest>
         <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
         <State>published</State>
         <Weight>100</Weight>
         <CreateTime>1563881012000</CreateTime>
         <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
         <RouteSource>11.0.0.0/32</RouteSource>
      </VpnPbrRouteEntry>
   </VpnPbrRouteEntries>
</DescribeVpnPbrRouteEntriesResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "RequestId": "E5D94DC7-AEC7-4E73-A203-61B04D1F1160",
    "PageSize": 10,
    "VpnPbrRouteEntries": {
        "VpnPbrRouteEntry": [
            {
                "RouteDest": "10.0.0.0/32",
                "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
                "State": "published",
                "Weight": 100,
                "CreateTime": 1563881012000,
                "NextHop": "vco-bp1tui07ob10fmuro****",
                "RouteSource": "11.0.0.0/32"
            }
        ]
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

PublishVpnRouteEntry

Advertises a route of a VPN gateway to the route table of the associated virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PublishVpnRouteEntry	The operation that you want to perform. Set the value to **PublishVpnRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the route of the VPN gateway to the route table of the associated VPC. • **true**: advertises the route to the route table of the associated VPC. • **false**: does not advertise the route to the route table of the associated VPC.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the route of the VPN gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the route of the VPN gateway.
RouteType	String	Yes	pbr	The type of the route of the VPN gateway. Valid values: • **pbr**: policy-based route. • **dbr**: destination-based route.

Parameter	Type	Required	Example	Description
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=PublishVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteType=pbr
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PublishVpnRouteEntryResponse>
      <RequestId>EE4C2417-9437-4333-BDEB-8493F7AA7258</RequestId>
</PublishVpnRouteEntryResponse>
```

`JSON` format

```
{
    "RequestId":"CB2793A8-845F-444C-8E93-76F1BBDF9C78"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

CreateVpnPbrRouteEntry

Creates a policy-based route for a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnPbrRouteEntry	The operation that you want to perform. Set the value to **CreateVpnPbrRouteEntry**.

Parameter	Type	Required	Example	Description
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the policy-based route to the route table of the associated virtual private cloud (VPC). Valid values: • **true**: advertises the policy-based route to the route table of the associated VPC . • **false**: does not advertise the policy-based route to the route table of the associated VPC.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the policy-based route for the VPN gateway. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the policy-based route. Valid values: • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.

Parameter	Type	Required	Example	Description
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Description	String	No	vpnroute1	The description of the policy-based route.
OverlayMode	String	No	Ipsec	The overlay mode.

Response parameters

Parameter	Type	Example	Description
CreateTime	Long	1492747187000	The timestamp generated when the policy-based route was created.
Description	String	vpnroute1	The description of the policy-based route.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
OverlayMode	String	Ipsec	The overlay mode.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	192.168.1.0/24	The source CIDR block of the policy-based route.

Parameter	Type	Example	Description
State	String	normal	The status of the policy-based route. Valid values: • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the policy-based route. Valid values: **0** and **100**.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnPbrRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnPbrRouteEntryResponse>
   <RouteDest>10.0.0.0/24</RouteDest>
   <RouteSource>192.168.1.0/24</RouteSource>
   <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
   <OverlayMode>Ipsec</OverlayMode>
   <State>published</State>
   <Weight>100</Weight>
   <CreateTime>1563873294331</CreateTime>
   <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
</CreateVpnPbrRouteEntryResponse>
```

`JSON` format

```
{
    "RouteDest": "10.0.0.0/24",
    "RouteSource": "192.168.1.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "OverlayMode": "Ipsec",
    "State": "published",
    "Weight": 100,
    "CreateTime": 1563873294331,
    "NextHop": "vco-bp1tui07ob10fmuro****"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

15.1.2.1.14.4. IPsec-VPN

DescribeVpnConnection

Queries the details of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnConnection	The operation that you want to perform. Set the value to **DescribeVpnConnection**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	cgw-bp1mvj4g9kogwwcxk****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Name	String	ipsec1	The name of the IPsec-VPN connection.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The time when the IPsec-VPN connection was created.

Parameter	Type	Example	Description
Status	String	ike_sa_not_established	The status of the IPsec-VPN connection. Valid values: • **ike_sa_not_established**: indicates that Phase 1 negotiations failed. • **ike_sa_established**: indicates that Phase 1 negotiations succeeded. • **ipsec_sa_not_established**: indicates that Phase 2 negotiations failed. • **ipsec_sa_established**: indicates that Phase 2 negotiations succeeded.
EffectImmediately	Boolean	true	Indicates whether the IPsec-VPN connection immediately takes effect. Valid values: • **true**: Negotiations are reinitiated when the configuration is changed. • **false**: Negotiations are reinitiated when traffic is detected. When negotiations are reinitiated, transient connections may occur.
IkeConfig	Struct		The configuration of Phase 1 negotiations.
IkeAuthAlg	String	sha1	The IKE authentication algorithm.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime.
IkeMode	String	main	The IKE mode. Both **main** and **aggressive** modes are supported. The main mode provides higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.

Parameter	Type	Example	Description
LocalId	String	116.XX.XX.69	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8in7x5	The pre-shared key.
RemoteId	String	139.XX.XX.32	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.
IpsecPfs	String	group2	The DH group.
RequestId	String	F2310D45-BCF6-4E2E-9082-B4503844BA4C	The ID of the request.
VcoHealthCheck	Struct		The information about health checks.
Dip	String	10.XX.XX.1	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **false**: Health checks are disabled. • **true**: Health checks are enabled.
Interval	Integer	3	The interval between two consecutive health checks. Unit: seconds.

Parameter	Type	Example	Description
Retry	Integer	3	The maximum number of health check retries.
Sip	String	192.XX.XX.2	The source IP address for health checks.
Status	String	failed	The status of the health check.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnConnection
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnConnectionResponse>
      <PageNumber>1</PageNumber>
      <VpnConnections>
            <VpnConnection>
                  <Name>c2</Name>
                  <CustomerGatewayId>cgw-bp1wl8dtz3auwlav****</CustomerGatewayId>
                  <Status>ike_sa_not_established</Status>
                  <RemoteSubnet>192.168.0.0/16</RemoteSubnet>
                  <IpsecConfig>
                        <IpsecLifetime>86400</IpsecLifetime>
                        <IpsecAuthAlg>md5</IpsecAuthAlg>
                        <IpsecPfs>group2</IpsecPfs>
                        <IpsecEncAlg>aes</IpsecEncAlg>
                  </IpsecConfig>
                  <EffectImmediately>false</EffectImmediately>
                  <VpnGatewayId>vpn-bp1yfrjxn4d5t63tb****</VpnGatewayId>
                  <CreateTime>1519391420000</CreateTime>
                  <VpnConnectionId>vco-bp1w3m1p23iftycvs****</VpnConnectionId>
                  <LocalSubnet>172.16.0.0/12</LocalSubnet>
                  <IkeConfig>
                        <IkeEncAlg>aes</IkeEncAlg>
                        <RemoteId>47.XX.XX.176</RemoteId>
                        <IkePfs>group2</IkePfs>
                        <IkeAuthAlg>sha1</IkeAuthAlg>
                        <Psk>1234567</Psk>
                        <IkeMode>aggressive</IkeMode>
                        <IkeLifetime>86400</IkeLifetime>
                        <IkeVersion>ikev1</IkeVersion>
                        <LocalId>116.XX.XX.119</LocalId>
                  </IkeConfig>
            </VpnConnection>
      </VpnConnections>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>7D598A10-26EF-44F2-9F47-E417842F3CEA</RequestId>
</DescribeVpnConnectionResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "VpnConnections": {
        "VpnConnection": [
            {
                "Name": "c2",
                "CustomerGatewayId": "cgw-bp1wl8dtz3auwlavw****",
                "Status": "ike_sa_not_established",
                "RemoteSubnet": "192.168.0.0/16",
                "IpsecConfig": {
                    "IpsecLifetime": 86400,
                    "IpsecAuthAlg": "md5",
                    "IpsecPfs": "group2",
                    "IpsecEncAlg": "aes"
                },
                "EffectImmediately": false,
                "VpnGatewayId": "vpn-bp1yfrjxn4d5t63t****",
                "CreateTime": 1519391420000,
                "VpnConnectionId": "vco-bp1w3m1p23iftycv****",
                "LocalSubnet": "172.16.0.0/12",
                "IkeConfig": {
                    "IkeEncAlg": "aes",
                    "RemoteId": "47.XX.XX.176",
                    "IkePfs": "group2",
                    "IkeAuthAlg": "sha1",
                    "Psk": "1234567",
                    "IkeMode": "aggressive",
                    "IkeLifetime": 86400,
                    "IkeVersion": "ikev1",
                    "LocalId": "116.XX.XX.119"
                }
            }
        ]
    },
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "7D598A10-26EF-44F2-9F47-E417842F3CEA"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.

DeleteVpnConnection

Deletes a specified IPsec-VPN connection.

Note After an IPsec-VPN connection between a virtual private cloud (VPC) and a data center is deleted, the communication between the VPC and data center is interrupted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnConnection	The operation that you want to perform. Set the value to **DeleteVpnConnection**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnConnection
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnConnectionResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteVpnConnectionResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.

DownloadVpnConnectionConfig

Queries the configuration of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DownloadVpnConnectionConfig	The operation that you want to perform. Set the value to **DownloadVpnConnectionConfig**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0C68048B-0F70-40DA-B8AE-1B79B5CF62E3	The ID of the request.
VpnConnectionConfig	Struct		The configuration of the IPsec-VPN connection.

Parameter	Type	Example	Description
IkeConfig	Struct		The IKE configuration.
IkeAuthAlg	String	sha1	The IKE authentication algorithm. Valid values: **sha1** and **md5**.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime. Unit: seconds.
IkeMode	String	main	The IKE mode. Valid values: **main** and **aggressive**. The main mode offers higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.69	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8i****	The pre-shared key.
RemoteId	String	139.XX.XX.32	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of the IPsec-VPN connection.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm. Valid values: **sha1** and **md5**.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime. Unit: seconds.

Parameter	Type	Example	Description
IpsecPfs	String	group2	The DH group.
Local	String	139.XX.XX.32	The ID of the VPN gateway.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
Remote	String	116.XX.XX.69	The ID of the customer gateway.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DownloadVpnConnectionConfig
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DownloadVpnConnectionConfigResponse>
      <RequestId>0C68048B-0F70-40DA-B8AE-1B79B5CF62E3</RequestId>
      <VpnConnectionConfig>
            <RemoteSubnet>10.10.1.0/24,10.10.2.0/24</RemoteSubnet>
            <Local>139.XX.XX.32</Local>
            <IpsecConfig>
                  <IpsecLifetime>86400</IpsecLifetime>
                  <IpsecAuthAlg>sha1</IpsecAuthAlg>
                  <IpsecPfs>group2</IpsecPfs>
                  <IpsecEncAlg>aes</IpsecEncAlg>
            </IpsecConfig>
            <Remote>116.XX.XX.69x</Remote>
            <LocalSubnet>172.16.2.0/24</LocalSubnet>
            <IkeConfig>
                  <IkeEncAlg>aes</IkeEncAlg>
                  <IkePfs>group2</IkePfs>
                  <RemoteId>116.XX.XX.69</RemoteId>
                  <IkeAuthAlg>sha1</IkeAuthAlg>
                  <Psk>pgw6dy7d1i8i****</Psk>
                  <IkeMode>main</IkeMode>
                  <IkeLifetime>86400</IkeLifetime>
                  <IkeVersion>ikev1</IkeVersion>
                  <LocalId>139.XX.XX.32</LocalId>
            </IkeConfig>
      </VpnConnectionConfig>
</DownloadVpnConnectionConfigResponse>
```

`JSON` format

```
{
    "RequestId": "0C68048B-0F70-40DA-B8AE-1B79B5CF62E3",
    "VpnConnectionConfig": {
        "RemoteSubnet": "10.10.1.0/24,10.10.2.0/24",
        "Local": "139.XX.XX.32",
        "IpsecConfig": {
            "IpsecLifetime": 86400,
            "IpsecAuthAlg": "sha1",
            "IpsecPfs": "group2",
            "IpsecEncAlg": "aes"
        },
        "Remote": "116.XX.XX.69",
        "LocalSubnet": "172.16.2.0/24",
        "IkeConfig": {
            "IkeEncAlg": "aes",
            "IkePfs": "group2",
            "RemoteId": "116.XX.XX.69",
            "IkeAuthAlg": "sha1",
            "Psk": "pgw6dy7d1i8i****",
            "IkeMode": "main",
            "IkeLifetime": 86400,
            "IkeVersion": "ikev1",
            "LocalId": "139.XX.XX.32"
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.

CreateVpnConnection

Creates an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnConnection	The operation that you want to perform. Set the value to **CreateVpnConnection**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnk****	The ID of the customer gateway.
LocalSubnet	String	Yes	10.1.1.0/24,10.1.2.0/24	The CIDR block of the virtual private cloud (VPC) that is used to connect with the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.1.0/24,192.168.2.0/24.
RegionId	String	Yes	cn-qingdao-env66-d01	The region ID of the IPsec-VPN connection. You can call the `DescribeRegions` operation to query the most recent region list.
RemoteSubnet	String	Yes	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center. The peer CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.3.0/24,192.168.4.0/24.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
Name	String	No	IPsec	The name of the IPsec-VPN connection. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
EffectImmediately	Boolean	No	false	Specifies whether to delete the current IPsec tunnel and reinitiate negotiations. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected. This is the default value.

Parameter	Type	Required	Example	Description
IkeConfig	String	No	{"IkeVersion":"ikev1","IkeMode":"main","IkeEncAlg":"aes","IkeAuthAlg":"sha1","IkePfs":"group2","IkeLifetime":86400}	The configuration of Phase 1 negotiations: • **IkeConfig.Psk**: the pre-shared key that is used to authenticate the VPN gateway and the customer gateway. By default, a random value is generated. You can also specify a pre-shared key. The description cannot exceed 100 characters in length. • **IkeConfig.IkeVersion**: The version of the IKE protocol. Valid values: **ikev1** and **ikev2**. Default value: **ikev1**. • **IkeConfig.IkeMode**: the negotiation mode of IKE V1. Valid values: **main** and **aggressive**. Default value: **main**. • **IkeConfig.IkeEncAlg**: The encryption algorithm used in Phase 1 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IkeConfig.IkeAuthAlg**: The authentication algorithm used in Phase 1 negotiations. Valid values: **md5** and **sha1**. Default value: **md5**. • **IkeConfig.IkePfs**: The Diffie-Hellman key exchange algorithm used in Phase 1 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IkeConfig.IkeLifetime**: the SA lifetime as a result of Phase 1 negotiations. Valid values: **0 to 86400**. Unit: seconds. Default value: **86400**. • **IkeConfig.LocalIdIPsec**: the identifier of the VPN gateway. This parameter can contain up to 100 characters. The default value is the public IP address of the VPN gateway. • **IkeConfig.RemoteId**: the identifier of the customer gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the customer gateway.

Parameter	Type	Required	Example	Description
IpsecConfig	String	No	{"IpsecEncAlg":"aes","IpsecAuthAlg":"sha1","IpsecPfs":"group2","IpsecLifetime":86400}	The configuration of Phase 2 negotiations: • **IpsecConfig.IpsecEncAlg**: The encryption algorithm used in Phase 2 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IpsecConfig. IpsecAuthAlg**: The authentication algorithm used in Phase 2 negotiations. Valid values: **md5** and **sha1**. Default value: **md5**. • **IpsecConfig. IpsecPfs**: the Diffie-Hellman group for perfect forward secrecy (PFS). If you set this parameter, the system forwards packets of all protocols. The Diffie-Hellman key exchange algorithm used in Phase 2 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IpsecConfig. IpsecLifetime**: the SA lifetime as a result of Phase 2 negotiations. Valid values: **0 to 86400**. Unit: seconds. Default value: **86400**.
HealthCheckConfig	String	No	{"enable":"true","dip":"192.168.xx.2","sip":"192.168.xx.2","interval":"3","retry":"3"}	The health check configuration: • **HealthCheckConfig.enable**: specifies whether to enable health checks. Valid values: **true and false**. Default value: false. • **HealthCheckConfig.dip**: the destination IP address configured for health checks. • **HealthCheckConfig.sip**: the source IP address configured for health checks. • **HealthCheckConfig.interval**: the time interval of health check retries. Unit: seconds. • **HealthCheckConfig.retry**: the maximum number of health check retries.

Parameter	Type	Required	Example	Description
AutoConfigRoute	Boolean	No	true	Specifies whether to automatically configure routes. Valid values: • **true**: enables automatic configuration. • **false**: disables automatic configuration. This is the default value.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp15oes1py4i6****	The ID of the IPsec-VPN connection.
CreateTime	Long	1544666102000	The timestamp generated when the IPsec-VPN connection was created.
Name	String	test	The name of the IPsec-VPN connection.
RequestId	String	082AD562-B8DB-4BB2-861F-DA1FCA01FD76	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnConnection
&CustomerGatewayId=vpn-bp1q8bgx4xnk****
&LocalSubnet=10.1.1.0/24,10.1.2.0/24
&RegionId=cn-qingdao-env66-d01
&RemoteSubnet=10.10.1.0/24,10.10.2.0/24
&VpnGatewayId=vpn-bp1q8bgx4xnkm****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnConnectionResponse>
      <VpnConnectionId>vco-bp1bbi27hojx8****</VpnConnectionId>
      <CreateTime>1493363928000</CreateTime>
</CreateVpnConnectionResponse>
```

`JSON` format

```
{
    "CreateTime": 1544666102000,
    "VpnConnectionId": "vco-bp15oes1py4i6****"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	InvalidVpnConnection.AlreadyExists	Vpn connection already exists.	The error message returned because the IPsec-VPN connection already exists.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DescribeVpnConnections

Queries one or more IPsec-VPN connections.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnConnections	The operation that you want to perform. Set the value to **DescribeVpnConnections**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connections are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	No	vpn-bp1q8bgx4xnkx****	The ID of the VPN gateway.
CustomerGatewayId	String	No	cgw-bp1mvj4g9kogw*****	The ID of the customer gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
VpnConnectionId	String	No	vco-bp15oes1py4i6****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
VpnConnections	Array of VpnConnection		The detailed information about the IPsec-VPN connections.
VpnConnection			
IkeConfig	Struct		The configuration of Phase 1 negotiations.

Parameter	Type	Example	Description
IkeAuthAlg	String	sha1	The IKE authentication algorithm. Valid values: **sha1** and **MD5**.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime. Unit: seconds.
IkeMode	String	main	The IKE mode. Valid values: **main** and **aggressive** . The **main** mode offers higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.
IkePfs	String	group2	The DH group. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.64	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d****	The pre-shared key.
RemoteId	String	139.XX.XX.167	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.Valid values: **sha1** and **md5**.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.

Parameter	Type	Example	Description
IpsecPfs	String	group2	The DH group.
VpnConnectionId	String	vco-bp10lz7aejumd****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	cgw-bp1mvj4g9kogw****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm****	The ID of the VPN gateway.
Name	String	name	The name of the IPsec-VPN connection.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The timestamp generated when the IPsec-VPN connection was created.
Status	String	ipsec_sa_established	The status of the IPsec-VPN connection. Valid values: • **ike_sa_not_established**: indicates that Phase 1 negotiations failed. • **ike_sa_established**: indicates that Phase 1 negotiations succeeded. • **ipsec_sa_not_established**: indicates that Phase 2 negotiations failed. • **ipsec_sa_established**: indicates that Phase 2 negotiations succeeded.
EffectImmediately	Boolean	true	Indicates whether IPsec-VPN negotiations are initiated immediately. Valid values: • **true**: Negotiations are reinitiated when the configuration is changed. • **false**: Negotiations are reinitiated when traffic is detected. When negotiations are reinitiated, transient connections may occur.
VcoHealthCheck	Struct		The configuration of health checks.

Parameter	Type	Example	Description
Dip	String	8.XX.XX.8	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **true**: Health checks are enabled. • **false**: Health checks are disabled.
Interval	Integer	2	The interval between two consecutive health checks. Unit: seconds.
Retry	Integer	1	The maximum number of health check retries.
Sip	String	192.XX.XX.66	The source IP address that is used for health checks.
Status	String	failed	The status of the health check. Valid values: • **failed**: The health check failed. • **success**: The health check was successful.
TotalCount	Integer	10	The number of entries.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.
RequestId	String	54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnConnections
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnConnections>
   <PageNumber>1</PageNumber>
   <VpnConnections>
      <VpnConnection>
         <Name>VPN connection test</Name>
         <CustomerGatewayId>cgw-bp1pvpl9r9adjxxxxxxxx</CustomerGatewayId>
         <RemoteSubnet>172.16.2.0/24</RemoteSubnet>
         <IpsecConfig>
            <IpsecLifetime>86400</IpsecLifetime>
            <IpsecAuthAlg>sha1</IpsecAuthAlg>
            <IpsecPfs>group2</IpsecPfs>
            <IpsecEncAlg>aes</IpsecEncAlg>
         </IpsecConfig>
         <EffectImmediately>true</EffectImmediately>
         <VpnGatewayId>vpn-bp1q8bgx4xnkmxxxxxxxx</VpnGatewayId>
         <CreateTime>1492753817000</CreateTime>
         <VpnConnectionId>vco-bp10lz7aejumdxxxxxxxx</VpnConnectionId>
         <status>ipsec_sa_established</status>
         <LocalSubnet>10.1.1.0/24,10.1.2.0/24</LocalSubnet>
         <IkeConfig>
            <IkeEncAlg>aes</IkeEncAlg>
            <RemoteId>139.XX.XX.167</RemoteId>
            <IkePfs>group2</IkePfs>
            <IkeAuthAlg>sha1</IkeAuthAlg>
            <Psk>pgw6dy****</Psk>
            <IkeMode>main</IkeMode>
            <IkeLifetime>86400</IkeLifetime>
            <IkeVersion>ikev1</IkeVersion>
            <LocalId>116.XX.XX.64</LocalId>
         </IkeConfig>
      </VpnConnection>
   </VpnConnections>
   <TotalCount>1</TotalCount>
   <PageSize>10</PageSize>
   <RequestId>54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939</RequestId>
</DescribeVpnConnections>
```

`JSON` format

```
{
    "PageNumber": 1,
    "VpnConnections": {
        "VpnConnection": [
            {
                "Name": "vpn connection test",
                "CustomerGatewayId": "cgw-bp1pvpl9r9adjxxxxxxxx",
                "RemoteSubnet": "172.16.2.0/24",
                "IpsecConfig": {
                    "IpsecLifetime": 86400,
                    "IpsecAuthAlg": "sha1",
                    "IpsecPfs": "group2",
                    "IpsecEncAlg": "aes"
                },
                "EffectImmediately": true,
                "VpnGatewayId": "vpn-bp1q8bgx4xnkmxxxxxxxx",
                "CreateTime": 1492753817000,
                "VpnConnectionId": "vco-bp10lz7aejumdxxxxxxxx",
                "status": "ipsec_sa_established",
                "LocalSubnet": "10.1.1.0/24,10.1.2.0/24",
                "IkeConfig": {
                    "IkeEncAlg": "aes",
                    "RemoteId": "139.XX.XX.167",
                    "IkePfs": "group2",
                    "IkeAuthAlg": "sha1",
                    "Psk": "pgw6dy****",
                    "IkeMode": "main",
                    "IkeLifetime": 86400,
                    "IkeVersion": "ikev1",
                    "LocalId": "116.XX.XX.64"
                }
            }
        ]
    },
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

ModifyVpnConnectionAttribute

Modifies the configuration of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnConnectionAttribute	The operation that you want to perform. Set the value to **ModifyVpnConnectionAttribute**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	IPsec	The name of the IPsec-VPN connection. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
LocalSubnet	String	No	10.1.1.0/24,10.1.2.0/24	The CIDR block of the virtual private cloud (VPC) that is used to connect with the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.1.0/24,192.168.2.0/24.
RemoteSubnet	String	No	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.3.0/24,192.168.4.0/24.
EffectImmediately	Boolean	No	false	Specifies whether to delete the current IPsec tunnel and reinitiate negotiations. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected. This is the default value.

Parameter	Type	Required	Example	Description
IkeConfig	String	No	{"IkeVersion":"ikev1","IkeMode":"main","IkeEncAlg":"aes","IkeAuthAlg":"sha1","IkePfs":"group2","IkeLifetime":86400}	The configuration of Phase 1 negotiations: • **IkeConfig.Psk**: the pre-shared key that is used to authenticate the VPN gateway and the customer gateway. You can specify a key or use the default key that is randomly generated by the system. The key must be 1 to 100 characters in length. • **IkeConfig.IkeVersion**: the version of the IKE protocol. Valid values: **ikev1** and **ikev2**. Default value: **ikev1**. • **IkeConfig.IkeMode**: the negotiation mode of IKE V1. Valid values: **main** and **aggressive**. Default value: **main**. • **IkeConfig.IkeEncAlg**: The encryption algorithm of Phase 1 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IkeConfig.IkeAuthAlg**: The authentication algorithm of Phase 1 negotiations. Valid values: **md5** and **sha1**. Default value: **sha1**. IkeConfig.IkePfs: The Diffie-Hellman key exchange algorithm of Phase 1 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IkeConfig.IkeLifetime**: the SA lifetime as a result of Phase 1 negotiations. Valid values: **0** to **86400**. Unit: seconds. Default value: **86400**. • **IkeConfig.LocalIdIPsec**: the identifier of the VPN gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the VPN gateway. • **IkeConfig.RemoteId**: the identifier of the customer gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the customer gateway.

Parameter	Type	Required	Example	Description
IpsecConfig	String	No	{"IpsecEncAlg":"aes","IpsecAuthAlg":"sha1","IpsecPfs":"group2","IpsecLifetime":86400}	The configuration of Phase 2 negotiations: • **IpsecConfig.IpsecEncAlg**: The encryption algorithm of Phase 2 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IpsecConfig. IpsecAuthAlg**: The authentication algorithm of Phase 2 negotiations. Valid values: **md5** and **sha1**. Default value: **sha1**. • **IpsecConfig. IpsecPfs**: the Diffie-Hellman group for perfect forward secrecy (PFS). If you set this parameter, the system forwards packets of all protocols. The Diffie-Hellman key exchange algorithm of Phase 2 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IpsecConfig. IpsecLifetime**: the SA lifetime as a result of Phase 2 negotiations. Valid values: **0** to **86400**. Unit: seconds. Default value: **86400**.
HealthCheckConfig	String	No	{"enable":"true","dip":"192.168.xx.2","sip":"192.168.xx.2","interval":"3","retry":"3"}	The health check configuration: • **HealthCheckConfig.enable**: specifies whether to enable health checks. Valid values: **true and false**. Default value: false. • **HealthCheckConfig.dip**: the destination IP address configured for the health check. • **HealthCheckConfig.sip**: the source IP address configured for the health check. • **HealthCheckConfig.interval**: the time interval of health check retries. Unit: seconds. • **HealthCheckConfig.retry**: the maximum number of health check retries.

Parameter	Type	Required	Example	Description
AutoConfigRoute	Boolean	No	true	Specifies whether to automatically advertise routes. Valid values: • **true**: enables automatic advertising. • **false**: disables automatic advertising. This is the default value.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Name	String	test	The name of the IPsec-VPN connection.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The timestamp generated when the IPsec-VPN connection was created.
Description	String	description	The description of the IPsec-VPN connection.
EffectImmediately	Boolean	false	Indicates whether IPsec-VPN negotiations are initiated immediately. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected.
IkeConfig	Struct		The configuration of Phase 1 negotiations.

Parameter	Type	Example	Description
IkeAuthAlg	String	sha1	The IKE authentication algorithm.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime.
IkeMode	String	main	The IKE mode.
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.64	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8i****	The pre-shared key.
RemoteId	String	139.XX.XX.167	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.
IpsecPfs	String	group2	The DH group.
RequestId	String	7DB79D0C-5F27-4AB5-995B-79BE55102F90	The ID of the request.
VcoHealthCheck	Struct		The health check configuration.

Parameter	Type	Example	Description
Dip	String	1.XX.XX.1	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **true**: Health checks are enabled. • **false**: Health checks are disabled.
Interval	Integer	3	The interval between two consecutive health checks. Unit: seconds.
Retry	Integer	1	The maximum number of health check retries.
Sip	String	2.XX.XX.2	The source IP address.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnConnectionAttribute
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnConnectionAttributeResponse>
      <Name>vpn</Name>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <RemoteSubnet>172.16.2.0/24</RemoteSubnet>
      <IpsecConfig>
            <IpsecLifetime>86400</IpsecLifetime>
            <IpsecAuthAlg>sha1</IpsecAuthAlg>
            <IpsecPfs>group2</IpsecPfs>
            <IpsecEncAlg>aes</IpsecEncAlg>
      </IpsecConfig>
      <EffectImmediately>false</EffectImmediately>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <CreateTime>1492753817000</CreateTime>
      <VpnConnectionId>vco-bp10lz7aejumd2vxo****</VpnConnectionId>
      <RequestId>57070A3D-38F2-40A6-A1C9-DB14542EF54D</RequestId>
      <LocalSubnet>10.1.1.0/24,10.1.2.0/24</LocalSubnet>
      <IkeConfig>
            <IkeEncAlg>aes</IkeEncAlg>
            <RemoteId>139.XX.XX.32</RemoteId>
            <IkePfs>group2</IkePfs>
            <IkeAuthAlg>sha1</IkeAuthAlg>
            <Psk>pgw6dy7d1i8i****</Psk>
            <IkeMode>main</IkeMode>
            <IkeLifetime>86400</IkeLifetime>
            <IkeVersion>ikev1</IkeVersion>
            <LocalId>116.XX.XX.69</LocalId>
      </IkeConfig>
</ModifyVpnConnectionAttributeResponse>
```

`JSON` format

```
{
    "Name": "vpn",
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "RemoteSubnet": "172.16.2.0/24",
    "IpsecConfig": {
        "IpsecLifetime": 86400,
        "IpsecAuthAlg": "sha1",
        "IpsecPfs": "group2",
        "IpsecEncAlg": "aes"
    },
    "EffectImmediately": false,
    "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
    "CreateTime": 1492753817000,
    "VpnConnectionId": "vco-bp10lz7aejumd2vxo****",
    "RequestId": "7DB79D0C-5F27-4AB5-995B-79BE55102F90",
    "LocalSubnet": "10.1.1.0/24,10.1.2.0/24",
    "IkeConfig": {
        "IkeEncAlg": "aes",
        "RemoteId": "139.XX.XX.32",
        "IkePfs": "group2",
        "IkeAuthAlg": "sha1",
        "Psk": "pgw6dy7d1i8i****",
        "IkeMode": "main",
        "IkeLifetime": 86400,
        "IkeVersion": "ikev1",
        "LocalId": "116.XX.XX.69"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. You can check whether the configuration of the connection is valid.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

15.1.2.1.14.5. SSL-VPN

CreateSslVpnServer

Creates an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSslVpnServer	The operation that you want to perform. Set the value to **CreateSslVpnServer**.
ClientIpPool	String	Yes	192.168.1.0/24	The CIDR block that is allocated to the virtual network interface of the client. It is not the CIDR block where the client resides. When the client accesses the server through an SSL-VPN connection, the VPN gateway selects an IP address from the specified CIDR block and assigns it to the client. This CIDR block must not conflict with the value of **LocalSubnet**.

Parameter	Type	Required	Example	Description
LocalSubnet	String	Yes	10.0.0.0/8	The CIDR block to be accessed by the client through the SSL-VPN connection. You can set the value to the CIDR block of a VPC, a vSwitch, a data center that is connected to the VPC through an Express Connect circuit, or an Alibaba Cloud service, such as ApsaraDB RDS or OSS.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1hgim8by0kc9nga****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	sslvpnname	The name of the SSL-VPN server. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://`.
Proto	String	No	UDP	The protocol that is used by the SSL-VPN server. Valid values: • **TCP**: TCP. • **UDP** : UDP. This is the default value.

Parameter	Type	Required	Example	Description
Cipher	String	No	AES-128-CBC	The encryption algorithm that is used in the SSL-VPN connection. Valid values: • **AES-128-CBC**: the AES-128-CBC algorithm. This is the default value. • **AES-192-CBC**: the AES-192-CBC algorithm. • **AES-256-CBC**: the AES-256-CBC algorithm. • **none**: If the parameter is set to this value, no encryption algorithm is used.
Port	Integer	No	1194	The port that is used by the SSL-VPN server. Default value: **1194**. The following ports cannot be used: **22, 2222, 22222, 9000, 9001, 9002, 7505, 80, 443, 53, 68, 123, 4510, 4560, 500, and 4500**.
Compress	Boolean	No	false	Specifies whether to enable data compression. Valid values: • **true**: enables data compression. • **false**: disables data compression. This is the default value.

Response parameters

Parameter	Type	Example	Description
Name	String	test	The name of the SSL-VPN server.
RequestId	String	E98A9651-7098-40C7-8F85-C818D1EBBA85	The ID of the request.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSslVpnServer
&ClientIpPool=192.168.1.0/24
&LocalSubnet=10.0.0.0/8
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1hgim8by0kc9nga****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSslVpnServerResponse>
      <RequestId>E98A9651-7098-40C7-8F85-C818D1EBBA85</RequestId>
      <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
      <Name>test</Name>
</CreateSslVpnServerResponse>
```

`JSON` format

```
{
    "RequestId": "E98A9651-7098-40C7-8F85-C818D1EBBA85",
    "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
    "Name": "test"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
400	InvalidName	The name is not valid	The error message returned because the format of the specified name is invalid.

HttpCode	Error code	Error message	Description
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DeleteSslVpnServer

Deletes an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSslVpnServer	The operation that you want to perform. Set the value to **DeleteSslVpnServer**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	Yes	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSslVpnServer
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-bp18q7hzj6largv4v****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSslVpnServerResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteSslVpnServerResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

ModifySslVpnServer

Modifies the configuration of an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySslVpnServer	The operation that you want to perform. Set the value to **ModifySslVpnServer**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	Yes	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
Name	String	No	test	The name of the SSL-VPN server. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.
ClientIpPool	String	No	10.30.30.0/24	The client IP address pool.
LocalSubnet	String	No	10.20.20.0/24	The CIDR block of the VPC.
Proto	String	No	UDP	The protocol that is used by the SSL-VPN server. Valid values: • **TCP**: TCP • **UDP**: UDP. This is the default value.
Cipher	String	No	AES-128-CBC	The encryption algorithm that is used in the SSL-VPN connection. Valid values: • **AES-128-CBC**: the AES-128-CBC algorithm. This is the default value. • **AES-192-CBC**: the AES-192-CBC algorithm. • **AES-256-CBC**: the AES-256-CBC algorithm. • **none**: If the parameter is set to this value, no encryption algorithm is used.
Port	Integer	No	1194	The port that is used by the SSL-VPN server. Default value: **1194**. The following ports cannot be used: **22, 2222, 22222, 9000, 9001, 9002, 7505, 80, 443, 53, 68, 123, 4510, 4560, 500, and 4500**.
Compress	Boolean	No	false	Specifies whether to enable data compression. Valid values: • **true**: enables data compression. • **false**: disables data compression. This is the default value.

Response parameters

Parameter	Type	Example	Description
Cipher	String	AES-128-CBC	The encryption algorithm.
ClientIpPool	String	10.30.30.0/24	The client IP address pool.
Compress	Boolean	false	Indicates whether data compression is enabled.
Connections	Integer	0	The total number of current connections.
CreateTime	Long	1492753580000	The time when the SSL-VPN server was created.
InternetIp	String	47.XX.XX.98	The public IP address.
LocalSubnet	String	10.20.20.0/24	The CIDR block of the VPC.
MaxConnections	Integer	5	The maximum number of connections.
Name	String	test	The name of the SSL-VPN server.
Port	Integer	1194	The port that is used by the SSL-VPN server.
Proto	String	UDP	The protocol that is used by the SSL-VPN server.
RegionId	String	cn-qingdao-env66-d01	The region ID of the SSL-VPN server.
RequestId	String	DF11D6F6-E35A-41C3-9B20-6FC8A901FE65	The ID of the request.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySslVpnServer
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-bp18q7hzj6largv4v****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySslVpnServerResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.30.30.0/24</CLientIpPool>
                  <LocalSubnet>10.20.20.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.98</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</ModifySslVpnServerResponse>
```

`JSON` format

```
{
    "PageNumber": "1",
    "TotalCount": "1",
    "PageSize": "10",
    "SslVpnServers": {
        "SslVpnServer": {
            "RegionId": "cn-qingdao-env66-d01",
            "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
            "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
            "Name": "test",
            "CLientIpPool": "10.30.30.0/24",
            "LocalSubnet": "10.20.20.0/24",
            "Proto": "UDP",
            "Port": "1194",
            "Cipher": "AES-128-CBC",
            "Compress": "true",
            "CreateTime": "1492753580000",
            "Connections": "0",
            "MaxConnections": "5",
            "InternetIp": "47.XX.XX.98"
        }
    },
    "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.

HttpCode	Error code	Error message	Description
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

DeleteSslVpnClientCert

Deletes an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSslVpnClientCert	The operation that you want to perform. Set the value to **DeleteSslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp1n8wcf134yl0osr****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSslVpnClientCertResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteSslVpnClientCertResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.

ModifySslVpnClientCert

Modifies the name of an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySslVpnClientCert	The operation that you want to perform. Set the value to **ModifySslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp1n8wcf134yl0osrc****	The ID of the SSL-VPN client certificate.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	cert2	The name of the SSL-VPN client certificate. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
Name	String	cert2	The name of the SSL-VPN client certificate.
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Parameter	Type	Example	Description
SslVpnClientCertId	String	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp1n8wcf134yl0osrc****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySslVpnClientCertResponse>
      <SslVpnClientCertId>vsc-bp1n8wcf134yl0osr****</SslVpnClientCertId>
      <Name>cert2</Name>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</ModifySslVpnClientCertResponse>
```

`JSON` format

```
{
    "SslVpnClientCertId": "vsc-bp1n8wcf134yl0osr****",
    "Name": "cert2",
    "RequestId": "606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

CreateSslVpnClientCert

Creates an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSslVpnClientCert	The operation that you want to perform. Set the value to **CreateSslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	Yes	vss-m5et0q3iy1qex328w****	The ID of the SSL-VPN server.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.
Name	String	No	SslVpnClientCert1	The name of the SSL-VPN client certificate. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
Name	String	SslVpnClientCert	The name of the SSL-VPN client certificate.
RequestId	String	079874CD-AEC1-43E6-AC03-ADD96B6E4907	The ID of the request.
SslVpnClientCertId	String	vsc-m5euof6s5jy8vs5kd****	The ID of the SSL-VPN client certificate.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-m5et0q3iy1qex328w****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSslVpnClientCertResponse>
      <SslVpnClientCertId>vsc-bp1n8wcf134yl0osr****</SslVpnClientCertId>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</CreateSslVpnClientCertResponse>
```

`JSON` format

```
{
    "SslVpnClientCertId": "vsc-bp1n8wcf134yl0osr****",
    "RequestId": "606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

DescribeSslVpnClientCerts

Queries one or more SSL-VPN client certificates.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnClientCerts	The operation that you want to perform. Set the value to **DescribeSslVpnClientCerts**.
RegionId	String	Yes	cn-qingdao-env66-d01	The region ID of the SSL-VPN client certificates to be queried. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	No	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.

Parameter	Type	Required	Example	Description
SslVpnClientCertId	String	No	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
Name	String	No	cert1	The name of the SSL-VPN client certificate.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
SslVpnClientCertKeys	Array of SslVpnClientCertKey		The detailed information about the queried SSL client certificates.
SslVpnClientCertKey			
CreateTime	Long	1492747187000	The timestamp generated when the SSL client certificate was created.
EndTime	Long	1494966335000	The time to be generated when the SSL client certificate expires.
Name	String	cert1	The name of the SSL-VPN client certificate.

Parameter	Type	Example	Description
RegionId	String	cn-qingdao-env66-d01	The region ID of the SSL-VPN client certificate.
SslVpnClientCertId	String	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
Status	String	normal	The status of the SSL-VPN client certificate. Valid values: • **expiring-soon**: The SSL-VPN client certificate expires in one week. • **normal**: The certificate is normal. • **expired**: The certificate has expired.
TotalCount	Integer	1	The number of returned entries.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnClientCerts
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.10.20.0/24</CLientIpPool>
                  <LocalSubnet>10.10.10.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.98</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
    "DescribeSslVpnServersResponse": {
        "PageNumber": "1",
        "TotalCount": "1",
        "PageSize": "10",
        "SslVpnServers": {
            "SslVpnServer": {
                "RegionId": "cn-qingdao-env66-d01",
                "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
                "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
                "Name": "test",
                "CLientIpPool": "10.10.20.0/24",
                "LocalSubnet": "10.10.10.0/24",
                "Proto": "UDP",
                "Port": "1194",
                "Cipher": "AES-128-CBC",
                "Compress": "true",
                "CreateTime": "1492753580000",
                "Connections": "0",
                "MaxConnections": "5",
                "InternetIp": "47.XX.XX.98"
            }
        },
        "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

DescribeSslVpnClientCert

Queries a specified SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnClientCert	The operation that you want to perform. Set the value to **DescribeSslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate that you want to query is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp17r58rjf5r1gjyr****	The ID of the SSL-VPN client certificate that you want to query.

Response parameters

Parameter	Type	Example	Description
CaCert	String	The CA certificate	The CA certificate.
ClientCert	String	The SSL-VPN client certificate	The SSL-VPN client certificate.
ClientConfig	String	The configuration of the client	The configuration of the client.
ClientKey	String	The key of the client	The key of the client.
CreateTime	Long	1552550980000	The timestamp generated when the SSL-VPN client certificate was created.
EndTime	Long	1647158980000	The timestamp to be generated when the SSL-VPN client certificate expires.
Name	String	abc	The name of the SSL-VPN client certificate.
RegionId	String	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Parameter	Type	Example	Description
SslVpnClientCertId	String	vsc-bp13k5mp4tg8v3z9b****	The ID of the SSL-VPN client certificate.
SslVpnServerId	String	vss-bp155e9yclsg1xgq4****	The ID of the SSL-VPN server.
Status	String	normal	The status of the SSL-VPN client certificate. Valid values: • **expiring-soon**: The SSL-VPN client certificate expires in one week. • **normal**: The certificate is normal. • **expired**: The certificate has expired.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp17r58rjf5r1gjyr****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <Name>df</Name>
      <Status>normal</Status>
      <ClientConfig>****</ClientConfig>
      <ClientCert>****</ClientCert>
      <CreateTime>1552550980000</CreateTime>
      <RegionId>cn-qingdao-env66-d01</RegionId>
      <RequestId>49D54005-6E0E-4132-B305-F3A24DEDDDC9</RequestId>
      <EndTime>1647158980000</EndTime>
      <SslVpnClientCertId>vsc-bp13k5mp4tg8v3z9b****</SslVpnClientCertId>
      <ClientKey>****</ClientKey>
      <CaCert>****</CaCert>
      <SslVpnServerId>vss-bp155e9yclsg1xgq4****</SslVpnServerId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
 "Name": "df",
 "Status": "normal",
 "ClientConfig": "****",
 "ClientCert": "****",
 "CreateTime": 1552550980000,
 "RegionId": "cn-qingdao-env66-d01",
 "RequestId": "49D54005-6E0E-4132-B305-F3A24DEDDDC9",
 "EndTime": 1647158980000,
 "SslVpnClientCertId": "vsc-bp13k5mp4tg8v3z9b****",
 "ClientKey": "****",
 "CaCert": "****",
 "SslVpnServerId": "vss-bp155e9yclsg1xgq4****"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

DescribeSslVpnServers

Queries one or more SSL-VPN servers.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnServers	The operation that you want to perform. Set the value to **DescribeSslVpnServers**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN servers are created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	No	vss-bp15j3du13gq1dgey****	The ID of the SSL-VPN server.
VpnGatewayId	String	No	vpn-bp1on0xae9d771ggi****	The ID of the VPN gateway.
Name	String	No	test	The name of the SSL-VPN server.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.
RequestId	String	085CA5EA-1E76-43A8-981B-E0208DECA0CB	The ID of the request.
SslVpnServers	Array of SslVpnServer		The detailed information about the SSL-VPN servers.
SslVpnServer			
Cipher	String	AES-128-CBC	The encryption algorithm.

Parameter	Type	Example	Description
ClientIpPool	String	10.10.1.0/24	The client IP address pool.
Compress	Boolean	false	Indicates whether the transmitted data is compressed.
Connections	Integer	0	The total number of current connections.
CreateTime	Long	1544668844000	The timestamp generated when the SSL-VPN server was created.
InternetIp	String	47.XX.XX.167	The public IP address.
LocalSubnet	String	192.168.0.0/24	The CIDR block of the client.
MaxConnections	Integer	5	The maximum number of connections.
Name	String	test	The name of the SSL-VPN server.
Port	Integer	1194	The port that is used by the SSL-VPN server.
Proto	String	UDP	The protocol that is used by the SSL-VPN server.
RegionId	String	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created.
SslVpnServerId	String	vss-bp15j3du13gq1dgey****	The ID of the SSL-VPN server.
VpnGatewayId	String	vpn-bp1on0xae9d771ggi****	The ID of the VPN gateway.
TotalCount	Integer	1	The total number of entries returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnServers
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.10.10.0/24</CLientIpPool>
                  <LocalSubnet>10.10.20.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.167</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
    "PageNumber": "1",
    "TotalCount": "1",
    "PageSize": "10",
    "SslVpnServers": {
        "SslVpnServer": {
            "RegionId": "cn-qingdao-env66-d01",
            "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
            "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
            "Name": "test",
            "CLientIpPool": "10.10.10.0/24",
            "LocalSubnet": "10.10.20.0/24",
            "Proto": "UDP",
            "Port": "1194",
            "Cipher": "AES-128-CBC",
            "Compress": "true",
            "CreateTime": "1492753580000",
            "Connections": "0",
            "MaxConnections": "5",
            "InternetIp": "47.XX.XX.167"
        }
    },
    "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

DescribeVpnSslServerLogs

Queries the logs of an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnSslServerLogs	The operation that you want to perform. Set the value to **DescribeVpnSslServerLogs**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnSslServerId	String	Yes	vss-bp155e9yclsg1xgq4****	The name of the SSL-VPN server.
From	Integer	No	2018020201	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. If the **From** parameter is set, you must set the **To** or **MinutePeriod** parameter.
To	Integer	No	2018020206	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. If the **From** parameter is set, you must set the **To** or **MinutePeriod** parameter.
MinutePeriod	Integer	No	10	The cycle of the logs. If the **From** and **To** parameters are not set, you must set the **MinutePeriod** parameter.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
Count	Integer	10	The number of log entries.
Data	List	test	An array of log entries. Each item in the array indicates a log entry.
IsCompleted	Boolean	true	Indicates whether the log data is accurate. Valid values: • **true**: accurate • **false**: inaccurate
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnSslServerLogs
&RegionId=cn-qingdao-env66-d01
&VpnSslServerId=vss-bp155e9yclsg1xgq4****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnSslServerLogsResponse>
   <Data></Data>
   <PageNumber>1</PageNumber>
   <Count>0</Count>
   <PageSize>10</PageSize>
   <IsCompleted>true</IsCompleted>
   <RequestId>26641E42-66C7-4942-9FEC-F99213914F8F</RequestId>
</DescribeVpnSslServerLogsResponse>
```

`JSON` format

```
{
 "Data": {
  "Logs": []
 },
 "PageNumber": 1,
 "Count": 0,
 "PageSize": 10,
 "IsCompleted": true,
 "RequestId": "26641E42-66C7-4942-9FEC-F99213914F8F"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

15.1.2.1.15. NAT gateways

15.1.2.1.15.1. ModifyNatGatewayAttribute

Modifies the name and description of a NAT gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNatGatewayAttribute	The operation that you want to perform. Set the value to **ModifyNatGatewayAttribute**.
NatGatewayId	String	Yes	ngw-2ze0dcn4mq31qx2jc****	The ID of the NAT gateway that you want to modify.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	nat123	The name of the NAT gateway that you want to modify. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`. **Note** You must specify at least one of the following parameters: **Name** and **Description**.
Description	String	No	fortest	The description of the NAT gateway. The description must be 2 to 256 characters in length, and must start with a letter. It cannot start with `http://` or `https://`. **Note** You must specify at least one of the following parameters: **Name** and **Description**.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	AB5F62CF-2B60-4458-A756-42C9DFE108D1	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyNatGatewayAttribute
&NatGatewayId=ngw-2ze0dcn4mq31qx2jc****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyNatGatewayAttributeResponse>
  <RequestId>AB5F62CF-2B60-4458-A756-42C9DFE108D1</RequestId>
</ModifyNatGatewayAttributeResponse>
```

`JSON` format

```
{"RequestId":"AB5F62CF-2B60-4458-A756-42C9DFE108D1"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.

15.1.2.1.15.2. ModifyNatGatewaySpec

Resizes a NAT gateway.

Description

NAT gateways are available in different sizes. The size of a NAT gateway determines the Source Network Address Translation (SNAT) performance of the gateway, such as the maximum number of connections and the number of new connections per second. However, the data throughput is not affected.

The following table describes the correlations between different sizes of NAT gateways and SNAT performance metrics.

Size	Maximum connection	Number of new connections per second
Small	10,000	1,000
Medium	50,000	5,000
Large	200,000	10,000

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNatGatewaySpec	The operation that you want to perform. Set the value to **ModifyNatGatewaySpec**.
NatGatewayId	String	Yes	ngw-bp1uewa15k4iy5770****	The ID of the NAT gateway.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed.
Spec	String	Yes	Small	The size of the NAT gateway. Valid values: • **Small**: a small-sized NAT gateway • **Middle**: a middle-sized NAT gateway • **Large**: a large-sized NAT gateway

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	false	Specifies whether to enable automatic payment. Valid values: • **true**: enables automatic payment. • **false**: disables automatic payment. This is the default value.
ClientToken	String	No	SHA234js121223*****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters, and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyNatGatewaySpec
&NatGatewayId=ngw-bp1uewa15k4iy5770****
&RegionId=cn-qingdao-env17-d01
&Spec=Small
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyNatGatewaySpecResponse>
      <RequestId>DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D</RequestId>
</ModifyNatGatewaySpecResponse>
```

`JSON` format

```
{
    "RequestId":"DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	NATGW_MODIFY_SPEC_SAME	The specified Spec is same with now.	The error message returned because the specified gateway size is the same as the current one.
400	InvalidParameter.Spec.ValueNotSupported	The specified Spec is not valid.	The error message returned because the specified gateway size is invalid.

15.1.2.1.15.3. DeleteNatGateway

Deletes a specified NAT gateway.

> **Note** Before you delete a NAT gateway, you must disassociate NAT service plans from the NAT gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteNatGateway	The operation that you want to perform. Set the value to **DeleteNatGateway**.
NatGatewayId	String	Yes	ngw-bp1uewa15k4iy5770****	The ID of the NAT gateway.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Force	Boolean	No	false	Specifies whether to forcibly delete the NAT gateway. Valid values: • **true**: forcibly deletes the NAT gateway. • **false**: does not forcibly delete the NAT gateway.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteNatGateway
&NatGatewayId=ngw-bp1uewa15k4iy5770****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNatGatewayResponse>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
</DeleteNatGatewayResponse>
```

`JSON` format

```
{
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	DependencyViolation.BandwidthPackages	There are BandwidthPackages on specified NatGateway not deleted.	The error message returned because one or more NAT service plans are associated with the NAT gateway. Disassociate all NAT service plans from the NAT gateway and try again.

15.1.2.1.15.4. CreateForwardEntry

Adds a DNAT entry to a DNAT table.

Description

Each DNAT entry consists of the following parameters: ExternalIp, ExternalPort, Protocol, InternalIp, and InternalPort. After you add a DNAT entry, the NAT gateway forwards packets of the specified protocol from [ExternalIp: ExternalPort] to [InternalIp: InternalPort] and sends responses back over the same route.

When you call this operation, take note of the following limits:

- The combinations of ExternalIp, ExternalPort, and Protocol used in DNAT entries must be unique. Requests cannot be distributed to more than one Elastic Compute Service (ECS) instance if these requests are originated from the same source IP address, received on the same port, and use the same protocol.
- The combinations of Protocol, InternalIp, and InternalPort used in DNAT entries must be unique.
- If one or more DNAT entries in the DNAT table are in the Pending or Modifying state, you cannot add DNAT entries to the DNAT table.
- The public IP address (ExternalIp) in the DNAT entry, which is used to access the Internet, must meet the following requirements:
  - If you have purchased a NAT service plan before November 3, 2017, the ExternalIp must be a public IP address in the NAT service plan.
  - If you have not purchased a NAT service plan before November 3, 2017, the ExternalIp must be an elastic IP address (EIP) associated with the NAT service plan.
  - You cannot specify the same EIP in both a DNAT entry and an SNAT entry.
- The private IP address (InternalIp) in the DNAT entry must meet the following requirements:
  - The private IP address must belong to the CIDR block of the virtual private cloud (VPC) where the NAT gateway is deployed.

- The DNAT entry takes effect only when the private IP address is allocated to an ECS instance and the ECS instance is not assigned an EIP. If the private IP address is allocated to a resource other than an ECS instance, such as a high-availability virtual IP addresses (HAVIPs), Server Load Balancer (SLB) instance, or RDS instance, the DNAT entry does not take effect. Consequently, inbound traffic cannot be forwarded to the private IP address.
- You cannot specify the same EIP in both a DNAT entry and an SNAT entry.

- You can add up to 100 DNAT entries to a DNAT table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateForwardEntry	The operation that you want to perform. Set the value to **CreateForwardEntry**.
ExternalIp	String	Yes	116.XX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	Yes	8080	The public port. Valid values: **1 to 65535**.
ForwardTableId	String	Yes	ftb-bp1mbjubq34hlcqpa****	The ID of the DNAT table.
InternalIp	String	Yes	192.XX.XX.1	The destination private IP address.
InternalPort	String	Yes	80	The destination private port. Valid values: **1 to 65535**.
IpProtocol	String	Yes	TCP	The protocol that is used by the ports. Valid values: • **TCP**: forwards TCP packets. • **UDP**: forwards UDP packets. • **Any**: forwards packets of all protocols.
RegionId	String	Yes	cn-qingdao-env17-d0	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The name must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The ClientToken value can contain only **ASCII** characters and cannot exceed 64 characters in length.
PortBreak	Boolean	No	false	Specifies whether to remove limits on the port range. Valid values: **true**: removes limits on the port range. **false** (default): sets limits on the port range. **Note** When an SNAT entry and a DNAT entry use the same public IP address, and you want to specify a port number greater than 1024, set **PortBreak** to **true**.

Response parameters

Parameter	Type	Example	Description
ForwardEntryId	String	fwd-119smw5tkasdf****	The ID of the DNAT entry.
RequestId	String	A4AEE536-A97A-40EB-9EBE-53A6948A6928	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateForwardEntry
&ExternalIp=116.XX.XX.28
&ExternalPort=8080
&ForwardTableId=ftb-bp1mbjubq34hlcqpa****
&InternalIp=192.XX.XX.1
&InternalPort=80
&IpProtocol=TCP
&RegionId=cn-qingdao-env17-d0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateForwardEntryResponse>
  <RequestId>A4AEE536-A97A-40EB-9EBE-53A6948A6928</RequestId>
  <ForwardEntryId>fwd-119smw5tkasdf****</ForwardEntryId>
</CreateForwardEntryResponse>
```

`JSON` format

```
{
    "CreateForwardEntryResponse": {
        "RequestId": "A4AEE536-A97A-40EB-9EBE-53A6948A6928",
        "ForwardEntryId": "fwd-119smw5tkasdf****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	The error message returned because the specified IP address is invalid.
400	InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	The error message returned because the specified private IP address is invalid.
400	InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	The error message returned because the specified public port is invalid.
400	InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	The error message returned because the specified private port is invalid.

HttpCode	Error code	Error message	Description
400	Forbidden.DestnationIpOutOfVpcCIDR	The specified Internal Ip is Out of VPC CIDR.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC. Enter a private IP address that falls within the CIDR block of the VPC.
400	InvalidProtocal.ValueNotSupported	The specified IpProtocol does not support.	The error message returned because the specified protocol is not supported.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
404	InvalidExternalIp.NotFound	Specified External Ip address does not found on the VRouter	The error message returned because the specified public IP address does not exist.
400	Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	The error message returned because the specified public IP address is already used by an SNAT entry. Select a different IP address or delete the SNAT entry.
400	Forbindden	The specified Instance already bind eip	The error message returned because the ECS instance is associated with an EIP. Disassociate the EIP from the ECS instance before you create forwarding rules.
400	Forbidden.InternalIpOutOfVpcCIDR	The specified Internal Ip is Out of VPC CIDR.	The error message returned because the private IP address does not fall within the CIDR block of the VPC.
400	Invalid.natgwNotExist	The specified natgateway not exist.	The error message returned because the specified NAT gateway does not exist.

HttpCode	Error code	Error message	Description
400	InvalidIp.NotInNatgw	The specified Ip not belong to natgateway.	The error message returned because the specified IP address is not associated with the NAT gateway.
400	MissingParameter	Missing mandatory parameter	The error message returned because one or more required parameters are not set. Check whether you have set all required parameters.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.

15.1.2.1.15.5. DescribeForwardTableEntries

Queries DNAT entries.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeForwardTableEntries	The operation that you want to perform. Set the value to **DescribeForwardTableEntries**.
ForwardTableId	String	Yes	ftb-bp1mbjubq34hlcqpa****	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ForwardEntryId	String	No	fwd-8vbn3bc8roygjp0gy****	The ID of the DNAT entry that is automatically assigned.
ExternalIp	String	No	116.XX.XX.28	The public IP address of the NAT gateway.

Parameter	Type	Required	Example	Description
ExternalPort	String	No	8080	The public port. Valid values: **1** to **65535**.
InternalIp	String	No	192.XX.XX.1	The destination private IP address.
InternalPort	String	No	80	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	No	TCP	The protocol type. Valid values: • **TCP**: forwards TCP packets. • **UDP**: forwards UDP packets. • **Any**: forwards packets of all protocols.
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with `http://` or `https://`.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
ForwardTableEntries	Array of ForwardTableEntry		The details of the DNAT entries.
ForwardTableEntry			
ExternalIp	String	116.XXX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	80	The public port.

Parameter	Type	Example	Description
ForwardEntryId	String	fwd-119smw5tk****	The ID of the DNAT entry.
ForwardEntryName	String	ForwardEntry-1	The name of the DNAT entry.
ForwardTableId	String	ftb-11tc6xgmv****	The ID of the DNAT table to which the DNAT entry belongs.
InternalIp	String	192.XX.XX.1	The private IP address.
InternalPort	String	25	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	TCP	The protocol type.
Status	String	Available	The state of the DNAT entry.
TotalCount	Integer	5	The total number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	A6C4A8B1-7561-4509-949C-20DEB40D71E6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeForwardTableEntries
&ForwardTableId=ftb-bp1mbjubq34hlcqpa****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeForwardTableEntriesResponse>
  <TotalCount>5</TotalCount>
  <PageSize>10</PageSize>
  <RequestId>A6C4A8B1-7561-4509-949C-20DEB40D71E6</RequestId>
  <PageNumber>1</PageNumber>
  <ForwardTableEntries>
        <Status>Available</Status>
        <ExternalPort>80</ExternalPort>
        <ExternalIp>116.XXX.XX.28</ExternalIp>
        <ForwardEntryId>fwd-119smw5tk****</ForwardEntryId>
        <IpProtocol>TCP</IpProtocol>
        <InternalPort>25</InternalPort>
        <ForwardEntryName>ForwardEntry-1</ForwardEntryName>
        <InternalIp>192.XX.XX.1</InternalIp>
        <ForwardTableId>ftb-11tc6xgmv****</ForwardTableId>
  </ForwardTableEntries>
</DescribeForwardTableEntriesResponse>
```

`JSON` format

```
{
    "TotalCount": 5,
    "PageSize": 10,
    "RequestId": "A6C4A8B1-7561-4509-949C-20DEB40D71E6",
    "PageNumber": 1,
    "ForwardTableEntries": {
        "Status": "Available",
        "ExternalPort": 80,
        "ExternalIp": "116.XXX.XX.28",
        "ForwardEntryId": "fwd-119smw5tk****",
        "IpProtocol": "TCP",
        "InternalPort": 25,
        "ForwardEntryName": "ForwardEntry-1",
        "InternalIp": "192.XX.XX.1",
        "ForwardTableId": "ftb-11tc6xgmv****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. One or more DNAT entries in the DNAT table are in the Pending or Modifying state.

HttpCode	Error code	Error message	Description
404	InvalidForwardTableId.NotFound	Specified forwardTableId does not exist	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.

15.1.2.1.15.6. ModifyForwardEntry

Modifies a DNAT entry.

> **Note** You cannot modify DNAT entries if one or more DNAT entries in the DNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyForwardEntry	The operation that you want to perform. The operation that you want to perform. Set the value to **ModifyForwardEntry**.
ForwardEntryId	String	Yes	fwd-8vbn3bc8roygjp0gy3xk7	The ID of the DNAT entry.
ForwardTableId	String	Yes	ftb-8vbx8xu2lqj9qb334h0ow	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ExternalIp	String	No	116.XX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	No	80	The public port. Valid values: **1** to **65535**.
InternalIp	String	No	10.XX.XX.78	The destination private IP address.

Parameter	Type	Required	Example	Description
InternalPort	String	No	80	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	No	TCP	The protocol type. Valid values: • **TCP**: forwards Transmission Control Protocol (TCP) packets. • **UDP**: forwards User Datagram Protocol (UDP) packets. • **Any**: forwards packets of all protocols.
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The description must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	24CC85DC-7700-4F09-9624-99E988C7DD03	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=ModifyForwardEntry
&ForwardEntryId=fwd-8vbn3bc8roygjp0gy3xk7
&ForwardTableId=ftb-8vbx8xu2lqj9qb334h0ow
&RegionId= cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
</ModifyForwardEntryResponse>
<RequestId>24CC85DC-7700-4F09-9624-99E988C7DD03</RequestId>
</ModifyForwardEntryResponse>
```

`JSON` format

```
{
    "RequestId": "24CC85DC-7700-4F09-9624-99E988C7DD03"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	The error message returned because the specified IP address is invalid.
400	InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	The error message returned because the specified private IP address is invalid.
400	InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	The error message returned because the specified public port is invalid.
400	InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	The error message returned because the specified private port is invalid.
400	Forbidden.DestnationIpOutOfVpcCIDR	The specified Destination Ip is Out of VPC CIDR.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC. Enter a private IP address that falls within the CIDR block of the VPC.
400	InvalidProtocal.ValueNotSupported	The specified IpProtocol does not support.	The error message returned because the specified protocol is not supported.

HttpCode	Error code	Error message	Description
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because the operation cannot be performed. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
400	QuotaExceeded	Forward entry quota exceeded in this route table.	The error message returned because one route table cannot contain more than 48 custom routes to a route table. You can submit a ticket to increase the quota.
404	InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	The error message returned because the specified DNAT entry does not exist.
404	InvalidExternalIp.NotFound	Specified External Ip address does not found on the VRouter	The error message returned because the specified public IP address does not exist.
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
400	Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	The error message returned because the specified public IP address is already used by an SNAT entry. Select a different IP address or delete the SNAT entry.
400	Forbidden.Already.Bounded	The specified instance already bounded	The error message returned because the specified instance is already associated with another DNAT entry.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the format of the specified name is invalid.

15.1.2.1.15.7. DeleteForwardEntry

Deletes a DNAT entry.

> **Note** You cannot delete DNAT entries if one or more DNAT entries in the DNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteForwardEntry	The operation that you want to perform. Set the value to **DeleteForwardEntry**.
ForwardEntryId	String	Yes	fwd-8vbn3bc8roygjp0g****	The ID of the DNAT entry.
ForwardTableId	String	Yes	ftb-8vbx8xu2lqj9qb334****	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteForwardEntry
&ForwardEntryId=fwd-8vbn3bc8roygjp0g****
&ForwardTableId=ftb-8vbx8xu2lqj9qb334****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteForwardEntryResponse>
  <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteForwardEntryResponse>
```

`JSON` format

```
{"RequestId":"0ED8D006-F706-4D23-88ED-E11ED28DCAC0"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
404	InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	The error message returned because the specified DNAT entry does not exist.
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
400	IncorretForwardEntryStatus	The Specified forwardEntry is not exist	The error message returned because the specified DNAT entry does not exist.
400	MissingParameter	Missing mandatory parameter	The error message returned because one or more required parameters are not set. Check whether you have set all required parameters.

15.1.2.1.15.8. CreateSnatEntry

Adds an SNAT entry to an SNAT table.

Description

When you call this operation, take note of the following limits:

- The vSwitch and the Elastic Compute Service (ECS) instance specified in the SNAT entry must belong to the virtual private cloud (VPC) where the NAT gateway is deployed.
- Each vSwitch or ECS instance can be specified in only one SNAT entry.
- If a high-availability virtual IP address (HAVIP) exists in the vSwitch, you cannot create SNAT entries.
- You cannot specify the same EIP in both a DNAT entry and an SNAT entry.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSnatEntry	The operation that you want to perform. Set the value to **CreateSnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
SnatIp	String	Yes	47.XX.XX.98	The public IP addresses. Separate multiple IP addresses with commas (,).
SnatTableId	String	Yes	stb-bp190wu8io1vgev****	The ID of the SNAT table.
SourceVSwitchId	String	No	vsw-bp1nhx2s9ui5o****	The ID of the vSwitch that requires to access the Internet.

Parameter	Type	Required	Example	Description
SourceCIDR	String	No	10.1.1.0/24	The CIDR block of the vSwitch or the IP address of the ECS instance. • vSwitch granularity: specifies the CIDR block of the vSwitch, for example, 192.168.1.0/24. When an ECS instance of a vSwitch requires to access the Internet, the NAT gateway provides the SNAT service for the ECS instance. If you specify only one public IP address in the **SnatIp** parameter, the ECS instance uses the specified public IP address to access the Internet. If you specify multiple public IP addresses in the **SnatIp** parameter, the ECS instance randomly selects a public IP address from **SnatIp** to access the Internet. • ECS granularity: specifies the IP address of the ECS instance, for example, 192.168.1.0/32. When the ECS instance requires to access the Internet, the NAT gateway provides the SNAT service for the ECS instance. If you specify only one public IP address in the **SnatIp** parameter, the ECS instance uses the specified public IP address to access the Internet. If you specify multiple public IP addresses in the **SnatIp** parameter, the ECS instance randomly selects a public IP address from **SnatIp** to access the Internet. This parameter and the **SourceVSwtichId** parameter cannot be set at the same time. If the **SourceVSwitchId** parameter is set, you cannot set the **SourceCIDR** parameter. If the **SourceCIDR** parameter is set, you cannot set the **SourceVSwitchId** parameter.
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The name must be 2 to 128 characters in length, and must start with a letter. It cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
SnatEntryId	String	snat-kmd6nv8fy****	The ID of the SNAT entry.
RequestId	String	2315DEB7-5E92-423A-91F7-4C1EC9AD97C3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSnatEntry
&RegionId=cn-qingdao-env17-d01
&SnatIp=47.XX.XX.98
&SnatTableId=stb-bp190wu8io1vgev****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSnatEntryResponse>
      <RequestId>2315DEB7-5E92-423A-91F7-4C1EC9AD97C3</RequestId>
      <SnatEntryId>snat-119smw5tkx****</SnatEntryId>
</CreateSnatEntryResponse>
```

`JSON` format

```
{
    "SnatEntryId": "snat-kmd6nv8fyx****",
    "RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
400	Forbidden.SourceVSwitchId.IncludeHaVip	There is some HaVips under specified VSwitch	The error message returned because the specified vSwitch is associated with HAVIPs.
400	InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	The error message returned because the specified public IP address is invalid.
400	SNAT_IP_POOL_COUNT_TOO_MANY	The Snat pool ip too many.	The error message returned because the number of IP addresses in the SNAT IP address pool has reached the upper limit.
400	Forbidden.SnatEntryCountLimited	SNAT entry in the specified SNAT table reach it?s limit.	The error message returned because the number of SNAT entries has reached the upper limit.
400	NOT_ALLOW_USE_SOURCECIDR	The User not in nat_scope_unlimited white list. Cannot use SourceCidr param.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC.
404	InvalidVSwitchId.NotFound	The specified virtual switch does not exists.	The error message returned because the specified vSwitch does not exist. Check whether the specified ID is valid.
400	INVALID_PARAMETER	The parameter invalid.	The error message returned because the specified parameter is invalid.
400	Forbidden.SourceVSwitchId.Duplicated	The specified SourceCIDRis duplicated.	The error message returned because an SNAT entry is already created for the specified vSwitch.
404	InvalidSnatIp.NotFound	Specified SnatIp does not found on the NAT Gateway	The error message returned because the specified public IP address is not found on the NAT gateway.

HttpCode	Error code	Error message	Description
400	Forbidden.IpUsedInForwardTable	The specified SnatIp already used in forward table	The error message returned because the specified public IP address is already used by a DNAT entry. Select another public IP address or delete the DNAT entry.
400	Forbindden	The specified Instance already bind eip	The error message returned because the ECS instance is associated with an EIP. Disassociate the EIP from the ECS instance before you create forwarding rules.
400	OperationUnsupported.CidrConflict	The specified CIDR block conflicts with an existing SNAT entry.	The error message returned because the specified CIDR block conflicts with those in existing SNAT entries.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.

15.1.2.1.15.9. DescribeSnatTableEntries

Queries SNAT entries.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnatTableEntries	The operation that you want to perform. Set the value to **DescribeSnatTableEntries**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
SnatTableId	String	Yes	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table.

Parameter	Type	Required	Example	Description
SnatEntryId	String	No	snat-8vbae8uqh7rjpk7d2****	The ID of the SNAT entry.
SourceVSwitchId	String	No	vsw-3xb****	The ID of the vSwitch that can access the Internet through SNAT.
SourceCIDR	String	No	116.XX.XX.0/28	The source CIDR block of the SNAT entry.
SnatIp	String	No	116.XX.XX.28	The public IP address in the SNAT entry.
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The name must be 2 to 128 characters in length, and start with a letter. The name cannot start with `http://` or `https://`.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
SnatTableEntries	Array of SnatTableEntry		The detailed information about the SNAT entries.
SnatTableEntry			
SnatEntryId	String	snat-8vbae8uqh7rjpk7d2****	The ID of the SNAT entry.
SnatEntryName	String	SnatEntry-1	The name of the SNAT entry.
SnatIp	String	116.XX.XX.28	The public IP address in the SNAT entry.

Parameter	Type	Example	Description
SnatTableId	String	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table to which the SNAT entry belongs.
SourceCIDR	String	116.XX.XX.0/28	The source CIDR block of the SNAT entry.
SourceVSwitchId	String	vsw-3xb****	The ID of the vSwitch that can access the Internet through SNAT.
Status	String	Pending	The state of the SNAT entry.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	5	The number of entries returned on each page.
RequestId	String	6D7E89B1-1C5B-412B-8585-4908E222EED5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSnatTableEntries
&RegionId=cn-qingdao-env17-d01
&SnatTableId=stb-8vbczigrhop8x5u3t****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnatTableEntriesResponse>
  <TotalCount>1</TotalCount>
  <PageSize>5</PageSize>
  <RequestId>6D7E89B1-1C5B-412B-8585-4908E222EED5</RequestId>
  <PageNumber>1</PageNumber>
  <SnatTableEntries>
        <Status>Pending</Status>
        <SourceVSwitchId>vsw-3xb****</SourceVSwitchId>
        <SnatEntryName>SnatEntry-1</SnatEntryName>
        <SourceCIDR>116.XX.XX.0/28</SourceCIDR>
        <SnatEntryId>snat-8vbae8uqh7rjpk7d2****</SnatEntryId>
        <SnatIp>116.XX.XX.28</SnatIp>
        <SnatTableId>stb-8vbczigrhop8x5u3t****</SnatTableId>
  </SnatTableEntries>
</DescribeSnatTableEntriesResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "PageSize": 5,
    "RequestId": "6D7E89B1-1C5B-412B-8585-4908E222EED5",
    "PageNumber": 1,
    "SnatTableEntries": {
        "Status": "Pending",
        "SourceVSwitchId": "vsw-3xb****",
        "SnatEntryName": "SnatEntry-1",
        "SourceCIDR": "116.XX.XX.0/28",
        "SnatEntryId": "snat-8vbae8uqh7rjpk7d2****",
        "SnatIp": "116.XX.XX.28",
        "SnatTableId": "stb-8vbczigrhop8x5u3t****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.

15.1.2.1.15.10. ModifySnatEntry

Modifies a specified SNAT entry.

> **Note** You cannot modify SNAT entries if one or more SNAT entries in the SNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySnatEntry	The operation that you want to perform. Set the value to **ModifySnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d0	The ID of the region where the NAT gateway is deployed.
SnatEntryId	String	Yes	snat-bp1vcgcf8tm0plqcg****	The ID of the SNAT entry.
SnatTableId	String	Yes	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table to which the SNAT entry belongs.
SnatIp	String	Yes	47.XX.XX.98	The public IP address in the SNAT entry. If multiple IP addresses are specified, separate them with commas (,).
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The description must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. Only ASCII characters are allowed. It can contain up to 64 ASCII characters.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	2315DEB7-5E92-423A-91F7-4C1EC9AD97C3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySnatEntry
&RegionId=cn-qingdao-env17-d0
&SnatEntryId=snat-bp1vcgcf8tm0plqcg****
&SnatTableId=stb-8vbczigrhop8x5u3t****
&SnatIp=47.XX.XX.98
&<Common request parameters>
```

Successful response examples

`XML` format

```
<ModifySnatEntryResponse>
      <RequestId>2315DEB7-5E92-423A-91F7-4C1EC9AD97C3</RequestId>
</ModifySnatEntryResponse>
```

`JSON` format

```
{
  "RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID is invalid. Check whether the service is available in the specified region.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
400	InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	The error message returned because the specified public IP address is invalid.

HttpCode	Error code	Error message	Description
404	InvalidSnatEntryId.NotFound	Specified SNAT entry does not exist.	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.
400	Forbidden.SourceVSwitchId.Duplicated	The specified SourceCIDRis duplicated.	The error message returned because an SNAT entry is already configured for the specified vSwitch.
404	InvalidSnatIp.NotFound	Specified SnatIp does not found on the NAT Gateway	The error message returned because the specified public IP address does not exist in the NAT gateway.
400	Forbidden.IpUsedInForwardTable	The specified SnatIp already used in forward table	The error message returned because the specified public IP address is already used by a DNAT entry. Select another IP address or delete the DNAT rule that uses the public IP address.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name format is invalid.

15.1.2.1.15.11. DeleteSnatEntry

Deletes a specified SNAT entry.

Note You cannot delete SNAT entries if one or more SNAT entries in the SNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSnatEntry	The operation that you want to perform. Set the value to **DeleteSnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
SnatEntryId	String	Yes	snat-bp1vcgcf8tm0plqc****	The ID of the SNAT entry.
SnatTableId	String	Yes	stb-bp190wu8io1vgev80****	The ID of the SNAT table.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	47B80B6A-759A-479C-A565-76D04BDA29F3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSnatEntry
&RegionId=cn-qingdao-env17-d01
&SnatEntryId=snat-bp1vcgcf8tm0plqc****
&SnatTableId=stb-bp190wu8io1vgev80****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSnatEntryResponse>
  <RequestId>47B80B6A-759A-479C-A565-76D04BDA29F3</RequestId>
</DeleteSnatEntryResponse>
```

`JSON` format

```
{"RequestId":"47B80B6A-759A-479C-A565-76D04BDA29F3"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	IncorretSnatEntryStatus	Some Snat entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more SNAT entries in the SNAT table are in the Pending or Modifying state.
404	InvalidSnatEntryId.NotFound	Specified Snat entry ID does not exist	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
404	InvalidSnatEntryId.NotFound	Specified SNAT entry does not exist.	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.

15.1.2.1.15.12. ModifyBandwidthPackageSpec

Modifies the bandwidth value of a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBandwidthPackageSpec	The operation that you want to perform. Set the value to **ModifyBandwidthPackageSpec**.
Bandwidth	String	Yes	5	The maximum bandwidth of the NAT service plan. Valid values: **5** to **1000**.

Parameter	Type	Required	Example	Description
BandwidthPackageId	String	Yes	bwp-s6lmotmkk****	The ID of the NAT service plan.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	079874CD-AEC1-43E6-AC03-ADD96B6E4907	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyBandwidthPackageSpec
&Bandwidth=5
&BandwidthPackageId=bwp-s6lmotmkk****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBandwidthPackageSpecResponse>
  <RequestId>079874CD-AEC1-43E6-AC03-ADD96B6E4907</RequestId>
</ModifyBandwidthPackageSpecResponse>
```

`JSON` format

```
{
    "RequestId": "079874CD-AEC1-43E6-AC03-ADD96B6E4907"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

HttpCode	Error code	Error message	Description
404	InvalidBandwidth.ValueNotSupported	The specified value of Bandwidth not supported.	The error message returned because the specified maximum bandwidth value is invalid.
404	BandwidthPackage.FinancialLocked	The specified BandwidthPackage has been Financail Lock.	The error message returned because the specified NAT service plan is locked due to overdue payments.

15.1.2.1.15.13. DeleteBandwidthPackage

Deletes a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBandwidthPackage	The operation that you want to perform. Set the value to **DeleteBandwidthPackage**.
BandwidthPackageId	String	Yes	bwp-bp1arsrmca9kp****	The ID of the NAT service plan.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Force	Boolean	No	false	Specifies whether to forcibly delete the NAT service plan. • **false**(default): no • **true**: yes

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	7D275A59-1EB0-4775-8A20-2A47055EAC5C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteBandwidthPackage
&BandwidthPackageId=bwp-bp1arsrmca9kp****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBandwidthPackageResponse>
  <RequestId>7D275A59-1EB0-4775-8A20-2A47055EAC5C</RequestId>
</DeleteBandwidthPackageResponse>
```

`JSON` format

```
{
    "RequestId": "7D275A59-1EB0-4775-8A20-2A47055EAC5C"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	DependencyViolation.ForwardEntry	The specified BandwidthPackageId has dependent resource.	The error message returned because the NAT service plan contains SNAT or DNAT entries. Delete them and try again.
400	DependencyViolation.SnatEntry	The specified BandwidthPackageId has dependent resource.	The error message returned because the NAT service plan contains SNAT or DNAT entries. Delete them and try again.

15.1.2.1.15.14. CreateBandwidthPackage

Creates a NAT service plan.

Description

A NAT service plan consists of bandwidth resources and one or more public IP addresses. You can associate up to four NAT service plans with a NAT gateway.

A NAT service plan includes:

- Bandwidth resources
- One or more public IP addresses

> **Note** This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before November 3, 2017. If you have not purchased a NAT service plan before November 3, 2017, you can apply for public IP addresses by associating elastic IP addresses (EIPs).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateBandwidthPackage	The operation that you want to perform. Set the value to **CreateBandwidthPackage**.
Bandwidth	Integer	Yes	5	The maximum bandwidth of the NAT service plan. Valid values: **5** to **1000**. Unit: Mbit/s.
IpCount	Integer	Yes	2	The number of public IP addresses in the NAT service plan. Valid values: **1** to **50**.
NatGatewayId	String	Yes	ngw-7mwb327j1****	The ID of the NAT gateway.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	The name of the NAT service plan.	The name of the NAT service plan. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
Description	String	No	The description of the NAT service plan.	The description of the NAT service plan. The name must be 2 to 256 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
ISP	String	No	BGP	Only **BGP** is supported.
Zone	String	No	cn-qingdao-env17-amtest11001-a	The zone to which the NAT service plan belongs. If you do not set this parameter, the service plan is randomly allocated to a zone. **Note** Connectivity is not affected when the IP addresses provided by the NAT service plan and the backend Elastic Compute Service (ECS) instances belong to different zones. However, when the IP addresses and ECS instances belong to the same zone, latency can be reduced.
InternetChargeType	String	No	PayByBandwidth	The metering method of the NAT service plan. Valid values: • **PayByTraffic**: pay-by-data-transfer • **PayByBandwidth**：按带宽计费。

Response parameters

Parameter	Type	Example	Description
BandwidthPackageId	String	bwp-s6lmotmkk****	The ID of the NAT service plan.

Parameter	Type	Example	Description
RequestId	String	54ED4074-3F89-4F11-B166-837DD3E20FE3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateBandwidthPackage
&Bandwidth=5
&IpCount=2
&NatGatewayId=ngw-7mwb327j1****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateBandwidthPackageResponse>
  <RequestId>54ED4074-3F89-4F11-B166-837DD3E20FE3</RequestId>
  <BandwidthPackageId>bwp-s6lmotmkk****</BandwidthPackageId>
</CreateBandwidthPackageResponse>
```

`JSON` format

```
{
    "RequestId": "54ED4074-3F89-4F11-B166-837DD3E20FE3",
    "BandwidthPackageId": "bwp-s6lmotmkk****"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidVpcId.NotFound	Specified value of VpcId is not found in our record.	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	MissingParameter	Miss mandatory parameter.	The error message returned because one or more required parameters are not set. Check whether you have set all the required parameters before you call this operation.

HttpCode	Error code	Error message	Description
404	InvalidZoneId.NotFound	Specified value of ZoneId is not exists.	The error message returned because the specified zone does not exist.
404	InvalidZoneId.NotFound	Can not find ZoneId for allocated ip.	The error message returned because the zone of the specified IP address is invalid.
400	QuotaExceeded.BandwidthPackageIps	The specified ipCount exceeded quota.	The error message returned because the number of IP addresses has reached the upper limit. Submit a ticket to increase the quota.
400	QuotaExceeded.BandwidthPackageCountOnNatGateway	BandwidthPackage count limit on one NatGateway exceeded.	The error message returned because the number of NAT service plans has reached the upper limit. You can associate up to four NAT service plans with a NAT gateway.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.
400	InvalidParameter.BandwidthPackage.n.ISP.ValueNotSupport	The specified ISP of BandwidthPackage is not valid.	The error message returned because the specified Internet service provider (ISP) of the EIP bandwidth plan is invalid.
400	ZONE_NO_AVAILABLE_IP	The Zone have no available ip.	The error message returned because no IP address is available in the zone.

15.1.2.1.15.15. DescribeBandwidthPackages

Queries NAT service plans in a specified region.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBandwidthPackages	The operation that you want to perform. Set the value to **DescribeBandwidthPackages**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
BandwidthPackageId	String	No	bwp-bp1xea10o8qxwdfs****	The ID of the NAT service plan.
NatGatewayId	String	No	ngw-bp1uewa15k4iydfre****	The ID of the NAT gateway.
PageNumber	Integer	No	10	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
BandwidthPackages	Array of BandwidthPackage		The detailed description of the NAT service plan.
BandwidthPackage			
Bandwidth	String	5	The bandwidth value of the NAT service plan. Valid values: **5** to **5000**. Unit: Mbit/s.
BandwidthPackageId	String	bwp-xxoo123sfwr****	The ID of the NAT service plan.

Parameter	Type	Example	Description
BusinessStatus	String	Normal	The state of the NAT service plan. Valid values: • **Normal**: The NAT service plan working as expected. • **FinancialLocked**: The NAT service plan is locked due to overdue payments. • **SecurityLocked**: The NAT service plan is locked due to security reasons.
CreationTime	String	2017-06-08T12:20:55	The time when the NAT service plan was created. The time follows the ISO 8601 standard in YYYY-MM-DDThh:mmZ format. It must be in UTC.
Description	String	test123	The description of the NAT service plan. The description must be 2 to 256 characters in length. The description is displayed in the console. This parameter is empty by default. It cannot start with `http://` or `https://`.
ISP	String	BGP	Only **BGP** is supported.
InstanceChargeType	String	PostPaid	The billing method of the NAT service plan. Only **PostPaid** (pay-as-you-go) is supported.
InternetChargeType	String	PayByBandwidth	The metering method of the NAT service plan. • **PayByTraffic**: pay-by-data-transfer • **PayByBandwidth**: 按带宽计费。
IpCount	String	1	The number of public IP addresses in the NAT service plan. Valid values: **1** to **50**.
Name	String	abc	The name of the NAT service plan.
NatGatewayId	String	ngw-xxoo123ggtf****	The ID of the NAT gateway.

Parameter	Type	Example	Description
PublicIpAddresses	Array of PublicIpAddress		The IP address in the NAT service plan.
PublicIpAddress			
AllocationId	String	eip-2zeerraiwb7ujdeds*****	The ID that is allocated.
ApAccessEnabled	Boolean	true	
IpAddress	String	116.XX.XX.28	The IP address.
UsingStatus	String	Available	The state of the NAT service plan.
RegionId	String	cn-qingdao-env17-d01	The region ID of the NAT service plan.
Status	String	Available	The state of the bandwidth plan.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone to which the NAT service plan belongs.
TotalCount	Integer	10	The number of entries returned.
PageNumber	Integer	10	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF"	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeBandwidthPackages
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBandwidthPackagesResponse>
  <TotalCount>10</TotalCount>
  <PageSize>10</PageSize>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF"</RequestId>
  <PageNumber>10</PageNumber>
  <BandwidthPackages>
        <Status>Available</Status>
        <IpCount>1</IpCount>
        <Description>test123</Description>
        <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
        <InstanceChargeType>PostPaid</InstanceChargeType>
        <ISP>BGP</ISP>
        <BusinessStatus>Normal</BusinessStatus>
        <InternetChargeType>PayByBandwidth</InternetChargeType>
        <Name>abc</Name>
        <Bandwidth>5</Bandwidth>
        <CreationTime>2017-06-08T12:20:55</CreationTime>
        <BandwidthPackageId>bwp-xxoo123sfwr****</BandwidthPackageId>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <NatGatewayId> ngw-xxoo123ggtf****</NatGatewayId>
        <PublicIpAddresses>
              <UsingStatus>Available</UsingStatus>
              <ApAccessEnabled>true</ApAccessEnabled>
              <AllocationId>eip-2zeerraiwb7ujdeds****</AllocationId>
              <IpAddress>116.XX.XX.28</IpAddress>
        </PublicIpAddresses>
  </BandwidthPackages>
</DescribeBandwidthPackagesResponse>
```

`JSON` format

```
{
    "TotalCount": 10,
    "PageSize": 10,
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF\"",
    "PageNumber": 10,
    "BandwidthPackages": {
        "Status": "Available",
        "IpCount": 1,
        "Description": "test123",
        "ZoneId": "cn-qingdao-env17-amtest11001-a",
        "InstanceChargeType": "PostPaid",
        "ISP": "BGP",
        "BusinessStatus": "Normal",
        "InternetChargeType": "PayByBandwidth",
        "Name": "abc",
        "Bandwidth": 5,
        "CreationTime": "2017-06-08T12:20:55",
        "BandwidthPackageId": "bwp-xxoo123sfwr****",
        "RegionId": "cn-qingdao-env17-d01",
        "NatGatewayId": "ngw-xxoo123ggtf****",
        "PublicIpAddresses": {
            "UsingStatus": "Available",
            "ApAccessEnabled": true,
            "AllocationId": "eip-2zeerraiwb7ujdeds****",
            "IpAddress": "116.XX.XX.28"
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.15.16. ModifyBandwidthPackageAttribute

Modifies the name and description of a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBandwidthPackageAttribute	The operation that you want to perform. Set the value to **ModifyBandwidthPackageAttribute**.
BandwidthPackageId	String	Yes	bwp-s6lmotmkk****	The ID of the NAT service plan.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	NATABC	The name of the NAT service plan. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name cannot start with `http://` or `https://`.
Description	String	No	This is NAT.	The description of the NAT service plan. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DFDDD35D-3F29-4E15-AA28-53F5341F9599	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyBandwidthPackageAttribute
&BandwidthPackageId=bwp-s6lmotmkk****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBandwidthPackageAttributeResponse>
  <RequestId>DFDDD35D-3F29-4E15-AA28-53F5341F9599</RequestId>
</ModifyBandwidthPackageAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "DFDDD35D-3F29-4E15-AA28-53F5341F9599"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidBandwidthPackageId.NotFound	The specified bandwidthPackageId does not exist in our records.	The error message returned because the ID of the specified NAT service plan does not exist.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.

15.1.2.1.15.17. AddBandwidthPackageIps

Adds one or more public IP addresses to a NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before November 3, 2017. Before November 03, 2017, no NAT bandwidth plan exists under the account. Bind an EIP.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate EIPs with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AddBandwidthPackageIps	The operation that you want to perform. Valid values: **AddBandwidthPackageIps** .
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT bandwidth plan resides. You can call `DescribeRegions` interface to obtain the region ID.
IpCount	String	Yes	2	The number of public IP addresses in the NAT bandwidth plan. Valid values: **1 ~ 50** .
BandwidthPackageId	String	Yes	bwp-s6lmotmkk****	The ID of the NAT service plan.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e0****	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	EC0B5C51-7F40-44D6-A642-1DE764B547EC	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AddBandwidthPackageIps
&RegionId=cn-qingdao-env17-d01
&IpCount=2
&BandwidthPackageId=bwp-s6lmotmkk****
&<Public request parameters>
```

Sample success responses

`XML` format

```
<AddBandwidthPackageIpsResponse>
  <RequestId>EC0B5C51-7F40-44D6-A642-1DE764B547EC</RequestId>
</AddBandwidthPackageIpsResponse>
```

`JSON` format

```
{
  "RequestId": "EC0B5C51-7F40-44D6-A642-1DE764B547EC"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	InvalidIpCount.ValueNotSupported	The specified value of IpCount not supported.	The error message returned because the value of the IpCount parameter is invalid.
400	QuotaExceeded.BandwidthPackageIps	The specified ipCount exceeded quota.	The error message returned because the number of IP addresses has reached the upper limit. Submit a ticket to increase the quota.
404	BandwidthPackage.FinancialLocked	The specified BandwidthPackage has been Financail Lock.	The error message returned because the specified NAT service plan is locked due to overdue payments.

15.1.2.1.16. Elastic IP addresses

15.1.2.1.16.1. AllocateEipAddress

Applies for an elastic IP address (EIP).

Description

After you call this operation, the system randomly allocates an EIP that is in the **Available** state in the specified region. EIPs support only the ICMP, TCP, and UDP transport layer protocols. The IGMP and SCTP protocols are not supported.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AllocateEipAddress	The operation that you want to perform. Set the value to **AllocateEipAddress**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to apply for an EIP. You can call the `DescribeRegions` operation to query region IDs.
Bandwidth	String	No	1	The bandwidth limit of the EIP. Valid values: **1** to **200**. Unit: Mbit/s. Default value: **1**.
Period	Integer	No	1	The subscription duration of the EIP. When **PricingCycle** is set to **Month**, **Period** can be set from **1 to 9**. When **PricingCycle** is set to **Year**, **Period** can be set from **1 to 3**. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.
ISP	String	No	BGP	The line type. Default value: **BGP**. • If your account is in the single-path BGP whitelist, you can set the parameter to **ChinaTelecom**, **ChinaUnicom**, or **ChinaMobile**. • This parameter is required if your workloads are deployed in the China East 1 Finance region. In this case, set the value to **BGP_FinanceCloud**.
ActivityId	Long	No	111111	The promotion code. You can leave this parameter empty.

Parameter	Type	Required	Example	Description
Netmode	String	No	public	The type of network. Set the value to **public** (Internet).
AutoPay	Boolean	No	false	Specifies whether to enable automatic payment. Valid values: **false**: disables automatic payment. After an order is generated, you must go to the order center to complete the payment. **true**: enables automatic payment. After an order is generated, the system automatically deducts fees from your account balance to pay for the order. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, this parameter is not required. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.
PricingCycle	String	No	Month	The billing cycle of the subscription EIP. Valid values: **Month**: billed on a monthly basis. This is the default value. **Year**: billed on an annual basis. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, this parameter is not required. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.

Parameter	Type	Required	Example	Description
InstanceChargeType	String	No	PostPaid	The billing method of the EIP. Valid values: **PrePaid**: subscription. **PostPaid**: pay-as-you-go. This is the default value. When **InstanceChargeType** is set to **PrePaid**, you must set **InternetChargeType** to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, you can set **InternetChargeType** to **PayByBandwidth** or **PayByTraffic**. **Note** If you want to purchase an EIP from the Alibaba Cloud International site, you must set this parameter to **PostPaid** (pay-as-you-go).
InternetChargeType	String	No	PayByTraffic	The metering method of the EIP. Valid values: **PayByBandwidth**: pay-by-bandwidth. This is the default value. **PayByTraffic**: pay-by-data-transfer. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
ResourceGroupId	String	No	rg-acfmxazffggds****	The ID of the enterprise resource group.

Parameter	Type	Required	Example	Description
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
EipAddress	String	10.XX.XX.78	The allocated EIP.
AllocationId	String	eip-25877c70gddh****	The ID of the EIP.
OrderId	Long	10	The order number. This parameter is returned only when **InstanceChargeType** is set to **PrePaid**.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.
ResourceGroupId	String	rg-acfmxazfdgdg****	The ID of the enterprise resource group.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AllocateEipAddress
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateEipAddressrResponse>
  <ResourceGroupId>rg-acfmxazfdgdg****</ResourceGroupId>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
  <AllocationId>eip-25877c70gddh****</AllocationId>
  <EipAddress>10.XX.XX.78</EipAddress>
  <OrderId>10</OrderId>
</AllocateEipAddressrResponse>
```

`JSON` format

```
{
    "AllocateEipAddressrResponse": {
        "ResourceGroupId": "rg-acfmxazfdgdg****",
        "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF",
        "AllocationId": "eip-25877c70gddh****",
        "EipAddress": "10.XX.XX.78",
        "OrderId": 10
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	InvalidParameter	Specified value of "InternetChargeType" is not valid	The error message returned because InternetChargeType is set to an invalid value.
400	InvalidParameter	Specified value of "Bandwidth" is not valid.	The error message returned because the specified bandwidth limit is invalid.
400	InsufficientBalance	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded.	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	ReserveIpFail	Reserve eip failed.	The error message returned because the system failed to reserve the EIP.

HttpCode	Error code	Error message	Description
400	InvalidRegion.NotSupport	The specified region does not support.	The error message returned because the specified region does not support this operation.
400	InvalidResourceGroupId	The specified ResourceGroupId does not exist.	The error message returned because the specified resource group ID does not exist.
409	OperationConflict	Request was denied due to conflict with a previos request.	The error message returned because a request conflict occurs. Try again later or submit a ticket to report the problem.

15.1.2.1.16.2. AllocateEipAddressPro

Applies for a specified elastic IP address (EIP).

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to apply for a specified EIP. You can call the `DescribeRegions` operation to query region IDs.
IpAddress	String	No	12.XX.XX.23	The IP address of the specified EIP. Specify **IpAddress** or **InstanceId**. If you leave both parameters empty, the system randomly allocates an EIP to your account.
InstanceId	String	No	eip-25877c70gddh****	The ID of the specified EIP. Specify **IpAddress** or **InstanceId**. If you leave both parameters empty, the system randomly allocates an EIP to your account.
Bandwidth	String	No	5	The bandwidth limit of the specified EIP. Unit: Mbit/s. Default value: **1**. Unit: Mbit/s.

Parameter	Type	Required	Example	Description
Period	Integer	No	1	The subscription duration of the specified EIP. When **PricingCycle** is set to **Month**, **Period** can be set from **1** to **9**. When **PricingCycle** is set to Year, **Period** can be set from **1** to **3**. When **InstanceChargeType** is set to **PrePaid**, this parameter is required. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter.
ISP	String	No	BGP	The line type. Default value: **BGP**. If your account is in the single-path BGP whitelist, you can set the parameter to **ChinaTelecom**, **ChinaUnicom**, or **ChinaMobile**. This parameter is required if your workloads are deployed in the China East 1 Finance region. In this case, set the value to **BGP_FinanceCloud**.
Netmode	String	No	public	The type of network. Set the value to **public** (Internet). Default value: **public** (Internet).
AutoPay	Boolean	No	true	Specifies whether to enable automatic payment. Valid values: **false**: disables automatic payment. After an order is generated, you must go to the order center to complete the payment. **true**: enables automatic payment. After an order is generated, the system automatically deducts fees from your account balance to pay for the order. When **InstanceChargeType** is set to **PrePaid**, this parameter is required. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter.

Parameter	Type	Required	Example	Description
InstanceChargeType	String	No	PostPaid	The billing method of the specified EIP. Valid values: **PrePaid**: subscription. **PostPaid**: pay-as-you-go. This is the default value. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
InternetChargeType	String	No	PayByBandwidth	The metering method of the specified EIP. Valid values: **PayByBandwidth** (default): pay-by-bandwidth **PayByTraffic**: pay-by-data-transfer. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
ResourceGroupId	String	No	rg-resourcegroup****	The ID of the resource group to which the EIP belongs.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
AllocationId	String	eip-25877c70gddh****	The ID of the specified EIP.

Parameter	Type	Example	Description
EipAddress	String	12.XX.XX.23	The IP address of the specified EIP.
OrderId	Long	20190000	The ID of the order.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.
ResourceGroupId	String	rg-resourcegroup****	The ID of the resource group to which the EIP belongs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AllocateEipAddressPro
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateEipAddressProResponse>
  <ResourceGroupId>rg-resourcegroup****</ResourceGroupId>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
  <AllocationId>eip-25877c70gddh****</AllocationId>
  <EipAddress>12.XX.XX.23</EipAddress>
  <OrderId>20190000</OrderId>
</AllocateEipAddressProResponse>
```

`JSON` format

```
{
    "ResourceGroupId": "rg-resourcegroup****",
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF",
    "AllocationId": "eip-25877c70gddh****",
    "EipAddress": "12.XX.XX.23",
    "OrderId": 20190000
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	InvalidParameter	Specified value of "InternetChargeType" is not valid	The error message returned because InternetChargeType is set to an invalid value.
400	InvalidParameter	Specified value of "Bandwidth" is not valid.	The error message returned because the specified bandwidth limit is invalid.
400	InsufficientBalance	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded.	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	ReserveIpFail	Reserve eip failed.	The error message returned because the system failed to reserve the specified EIP.
400	InvalidRegion.NotSupport	The specified region does not support.	The error message returned because the specified region does not support this operation.
400	InvalidResourceGroupId	The specified ResourceGroupId does not exist.	The error message returned because the specified resource group ID does not exist.

15.1.2.1.16.3. AssociateEipAddress

Associates an elastic IP address (EIP) with an instance that belongs to the same region as the EIP.

Description

When you call the operation, take note of the following items:

- You can associate an EIP with an Elastic Compute Service (ECS) instance, a Server Load Balancer (SLB) instance, a secondary elastic network interface (ENI), or a NAT gateway that is deployed in a virtual private cloud (VPC). The EIP and the instance with which you want to associate the EIP must belong to the same region.
- To associate an EIP with a NAT gateway, make sure that no NAT service plan that was purchased before November 3, 2017 exists in your account.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateEipAddress	The operation that you want to perform. Set the value to **AssociateEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7ujsxdc****	The ID of the EIP that you want to associate with an instance.
InstanceId	String	Yes	i-2zebb08phyczzawe****	The ID of the instance with which you want to associate the EIP. NAT gateways, SLB instances, ECS instances, secondary ENIs, and high-availability virtual IP addresses (HAVIPs) are supported.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
InstanceType	String	No	EcsInstance	The type of instance with which you want to associate the EIP. Valid values: • **Nat**: a NAT gateway • **SlbInstance**: an SLB instance • **EcsInstance**: an ECS instance • **NetworkInterface**: a secondary ENI • **HaVip**: an HAVIP
InstanceRegionId	String	No	cn-hangzhou	The ID of the region where the instance to be associated with the EIP is deployed. **Note** This parameter is required only when the EIP is associated with a shared-bandwidth Global Accelerator (GA) instance.

Parameter	Type	Required	Example	Description
PrivateIpAddress	String	No	192.XX.XX.4	An IP address that belongs to the CIDR block of a vSwitch. If you do not set this parameter, the system allocates a private IP address based on the VPC ID and vSwitch ID.
Mode	String	No	NAT	The mode in which you associate the EIP. Valid values: • **NAT** (default): NAT mode • **MULTI_BINDED**: multi-EIP to ENI mode • **BINDED**: cut-through mode Note This parameter does not support **BINDED**. Log on to the console to set the cut-through mode. This parameter is required only when **InstanceType** is set to **NetworkInterface**.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001sdfg	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C0FD0EED-F90D-4479-803D-DD62335357E5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateEipAddress
&AllocationId=eip-2zeerraiwb7ujsxdc****
&InstanceId=i-2zebb08phyczzawe****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssociateEipAddressResponse>
  <RequestId>C0FD0EED-F90D-4479-803D-DD62335357E5</RequestId>
</AssociateEipAddressResponse>
```

`JSON` format

```
{
    "RequestId": "C0FD0EED-F90D-4479-803D-DD62335357E5"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidAssociation.Duplicated	Specified instance already is associated.	The error message returned because an EIP or a GA instance is already associated with the specified instance. You must disassociate the EIP or GA instance from the specified instance before you can perform the operation.
400	OperationDenied	Specified instance is not in VPC.	The error message returned because the specified instance does not exist in the VPC.
400	InvalidParameter.Mismatch	Specified elastic IP address and ECS instance are not in the same region.	The error message returned because the specified EIP and ECS instance do not belong to the same region.
400	IncorrectEipStatus	Current elastic IP status does not support this operation	The error message returned because the state of the EIP does not support the operation.
404	InvalidInstanId.NotFound	Specified instance does not exist.	The error message returned because the specified instance does not exist. Check whether the ID is valid.

HttpCode	Error code	Error message	Description
400	IncorrectInstanceStatus	Current instance status does not support this operation.	The error message returned because the state of the instance does not support the operation.
400	InvalidInstanceType.ValueNotSupported	The specified value of InstanceType is not supported.	The error message returned because InstanceType is set to an invalid value.
400	IncorrectHaVipStatus	HaVip can be operated by this action only when it's status is Available or InUse.	The error message returned because the state of the HAVIP does not support the operation. You can perform the operation only when the HAVIP is in the Available or InUse state.
400	InvalidParameter	The specified parameter is not valid.	The error message returned because the parameter is set to an invalid value.
400	OperationDenied	Eip of default vpc not allow this operation	The error message returned because EIPs in the default VPC do not support the operation.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	InvalidBindingStatus	The eip binding status invalid.	The error message returned because the binding mode of the EIP is invalid.
400	BIND_INSTANCE_HAVE_PORTMAP_OR_BIND_EIP	The instance may have portMap or already bind eip.	The error message returned because a port forwarding rule is configured for the ECS instance. Delete the port forwarding rule and try again.
400	BIND_INSTANCE_OWENER_ERROR	Cannot operate the eip.	The error message returned because you are unauthorized to manage the specified EIP.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParams.NotFound	instance not found	The error message returned because the specified instance does not exist.

HttpCode	Error code	Error message	Description
503	ServiceUnavailable	The request has failed due to a temporary failure of the server.	The error message returned because the request failed due to a temporary malfunction of the server.

15.1.2.1.16.4. ModifyEipAddressAttribute

Modifies the name, description, and bandwidth limit of a specified elastic IP address (EIP).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyEipAddressAttribute	The operation that you want to perform. Set the value to **ModifyEipAddressAttribute**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to modify.
Bandwidth	String	No	100	The bandwidth limit of the EIP. Valid values: **1** to **200**. Unit: Mbit/s.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
Name	String	No	Test123	The name of the EIP. The name must be 2 to 128 characters in length, and can contain, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`.
Description	String	No	abc	The description of the EIP. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyEipAddressAttribute
&AllocationId=eip-2zeerraiwb7uj6i0d****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyEipAddressAttributeResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</ModifyEipAddressAttributeResponse>
```

`JSON` format

```
{
    "ModifyEipAddressAttributeResponse": {
        "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InsufficientBalance.Eip	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParameter	Specified value of "Bandwidth" is not supported.	The error message returned because the specified bandwidth limit is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.

HttpCode	Error code	Error message	Description
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found..	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParameter	The parameter is invalid.	The error message returned because the parameter is set to an invalid value.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.

15.1.2.1.16.5. UnassociateEipAddress

Disassociates an elastic IP address (EIP) from an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateEipAddress	The operation that you want to perform. Set the value to **UnassociateEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to disassociate.
InstanceId	String	Yes	i-hp3akk9irtd69jad****	The ID of the instance from which you want to disassociate the EIP.
Force	Boolean	No	false	Specifies whether to disassociate the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway. Valid values: • **false** (default): does not disassociate the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway. • **true**: disassociates the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
InstanceType	String	No	EcsInstance	The type of instance from which you want to disassociate the EIP. Valid values: • **EcsInstance** (default): an Elastic Compute Service (ECS) instance that is deployed in a virtual private cloud (VPC) • **SlbInstance**: a Server Load Balancer (SLB) instance that is deployed in a VPC • **NetworkInterface**: a secondary elastic network interface (ENI) that is deployed in a VPC • **Nat**: a NAT gateway • **HaVip** a high-availability virtual IP address (HAVIP)
PrivateIpAddress	String	No	192.XX.XX.2	The private IP address of the ECS instance or the secondary ENI from which you want to disassociate the EIP.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001***	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. ClientToken can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateEipAddress
&AllocationId=eip-2zeerraiwb7uj6i0d****
&InstanceId=i-hp3akk9irtd69jad****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociateEipAddressResponse>
   <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</UnassociateEipAddressResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.
400	InvalidInstanceId.NotFound	Specified instance does not exist.	The error message returned because the specified instance does not exist. Check whether the specified instance is valid.
400	IncorrectInstanceStatus	The current status of instance does not support this operation.	The error message returned because the state of the instance does not support the operation.
400	InvalidInstanceType.ValueNotSupported	The specified value of InstanceType is not supported.	The error message returned because InstanceType is set to an invalid value.
400	IncorrectHaVipStatus	This operation is denied because satus of the specified HaVip is neither Available nor InUse.	The error message returned because you cannot perform the operation when the specified HAVIP is in the Available or InUse state.

HttpCode	Error code	Error message	Description
400	OperationDenied	Eip of default vpc not allow this operation	The error message returned because EIPs in the default VPC do not support the operation.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.
400	InvalidParameter	The specified parameter is not valid.	The error message returned because the parameter is set to an invalid value.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	InvalidBindingStatus	The eip binding status invalid.	The error message returned because the binding mode of the EIP is invalid.

15.1.2.1.16.6. ReleaseEipAddress

Releases a specified elastic IP address (EIP).

Description

Before you release an EIP, make sure that the EIP meets the following requirements:

- You can release only EIPs that are in the **Available** state.
- You can release only EIPs that are billed on a pay-as-you-go basis. You cannot release subscription EIPs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReleaseEipAddress	The operation that you want to perform. Set the value to **ReleaseEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to release.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs. You can call the `DescribeRegions` operation to query region IDs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	748C38F6-9A3D-482E-83FB-DB6C39C68AEA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ReleaseEipAddress
&AllocationId=eip-2zeerraiwb7uj6i0d****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleaseEipAddressResponse>
      <RequestId>748C38F6-9A3D-482E-83FB-DB6C39C68AEA</RequestId>
</ReleaseEipAddressResponse>
```

`JSON` format

```
{
  "RequestId": "748C38F6-9A3D-482E-83FB-DB6C39C68AEA"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.
400	Forbidden.ChargeTypeIsPrepaid	It's forbidden to release a prepaid EIP	The error message returned because you cannot release subscription EIPs.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	TaskConflict.AssociateGlobalAccelerationInstance	Operate too frequent.	The error message returned because the number of requests that you send exceeds the upper limit.

15.1.2.1.16.7. DescribeEipGatewayInfo

Queries information about the gateway and subnet mask of an elastic IP address (EIP).

Description

You can query only EIPs that are associated with secondary elastic network interfaces (ENIs) in multi-EIP to ENI mode.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeEipGatewayInfo	The operation that you want to perform. Set the value to **DescribeEipGatewayInfo**.
InstanceId	String	Yes	eni-bp1d66qjxb3qoin3****	The ID of the secondary ENI that is associated with the EIP.
RegionId	String	Yes	cn-qingdao-env17-d01	The region to which the EIP that you want to query belongs. You can call the `DescribeRegions` operation to query region IDs.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The status code of the operation.
EipInfos	Array of EipInfo		Detailed information about the EIP.
EipInfo			
Ip	String	47.XX.XX.236	The IP address of the EIP.
IpGw	String	47.XX.XX.1	The IP address of the gateway that is associated with the EIP.
IpMask	String	255.255.255.0	The subnet mask of the EIP.
Message	String	successful	The result of the operation.
RequestId	String	C0FD0EED-F90D-4479-803D-DD62335357E5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeEipGatewayInfo
&InstanceId=eni-bp1d66qjxb3qoin3****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeEipGatewayInfoResponse>
  <Message>successful</Message>
  <RequestId>C0FD0EED-F90D-4479-803D-DD62335357E5    </RequestId>
  <Code>200</Code>
  <EipInfos>
        <IpMask>255.255.255.0</IpMask>
        <IpGw>47.XX.XX.1</IpGw>
        <Ip>47.XX.XX.236</Ip>
  </EipInfos>
</DescribeEipGatewayInfoResponse>
```

`JSON` format

```
{
    "Message": "successful",
    "RequestId": "C0FD0EED-F90D-4479-803D-DD62335357E5",
    "Code": 200,
    "EipInfos": {
        "IpMask": "255.255.255.0",
        "IpGw": "47.XX.XX.1",
        "Ip": "47.XX.XX.236"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.

15.1.2.1.17. HAVIPs

15.1.2.1.17.1. CreateHaVip

Creates a high-availability virtual IP address (HAVIP).

Descriptions

When you call this operation, take note of the following rules:

- You can create a maximum of five HAVIPs for a virtual private cloud (VPC).
- Before you delete a VPC, you must delete the HAVIPs that you have created for it.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateHaVip	The operation that you want to perform. Set the value to **CreateHaVip**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to create an HAVIP. You can call the `DescribeRegions` operation to the most recent region list.
VSwitchId	String	Yes	vsw-asdfjlnau****	The ID of the vSwitch to which the HAVIP belongs.
Name	String	No	test	The name of the HAVIP. The name must be 2 to 128 characters in length and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001s****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.
IpAddress	String	No	192.XX.XX.10	The IP address of the HAVIP. If this parameter is not set, an idle IP address of the specified vSwitch is randomly allocated to the HAVIP.
Description	String	No	This is my HaVip.	The description of the HAVIP. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
HaVipId	String	havip-2zeo05qre24nhrqp*****	The ID of the HAVIP.

Parameter	Type	Example	Description
IpAddress	String	192.XX.XX.10	The IP address of the HAVIP.
RequestId	String	C44F62BE-9CE7-4277-B117-69243F3988BF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateHaVip
&RegionId=cn-qingdao-env17-d01
&VSwitchId=vsw-asdfjlnau****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateHaVipResponse>
  <RequestId>C44F62BE-9CE7-4277-B117-69243F3988BF</RequestId>
  <IpAddress>192.XX.XX.10</IpAddress>
  <HaVipId>havip-2zeo05qre24nhrqp****</HaVipId>
</CreateHaVipResponse>
```

`JSON` format

```
{
    "RequestId": "C44F62BE-9CE7-4277-B117-69243F3988BF",
    "IpAddress": "192.XX.XX.10",
    "HaVipId": "havip-2zeo05qre24nhrqp****"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	Specified value of "regionId" is not supported.	The error message returned because the specified region ID is invalid. Check whether the service is available in the specified region.
404	InvalidVSwitchId.NotFound	The specified VSwitch does not exist in the specified region.	The error message returned because the specified vSwitch does not exist in the specified region.

HttpCode	Error code	Error message	Description
400	InvalidDescription.Malformed	The specified Description is wrongly formed.	The error message returned because the format of the specified description is invalid. The description must be 2 to 256 characters in length. It cannot start with http:// or https://.
403	CountLimitExceed.HaVipInVpc	Specified Vpc exceeds the quota of max number of ha-vip count.	The error message returned because the number of HAVIPs in the VPC has reached the upper limit.
403	QuotaExceeded.HaVip	Living HaVip quota exceeded.	The error message returned because the number of active HAVIPs has reached the upper limit.
400	InvalidIPAddress.OutOfRange	The specified IPAddress is out of VSwitch CIDR.	The error message returned because the specified IP address does not fall within the CIDR block of the vSwitch.
400	InvalidIPAddress.NotAvailable	The specified IPAddress is not available because it is a system reserved IPAddress.	The error message returned because the specified IP address is reserved by the system and cannot be used.
400	InvalidIPAddress.AlreadyUsed	The specified IPAddress is already used by other resource.	The error message returned because the specified IP address is already used by another resource.

15.1.2.1.17.2. DescribeHaVips

Queries high-availability virtual IP addresses (HAVIPs) in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeHaVips	The operation that you want to perform. Set the value to **DescribeHaVips**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to create an HAVIP. You can call the **DescribeRegions** operation to query the most recent region list.
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
Filter.N.Key	String	No	HaVipId.havip-bp149uyvut73dpldu****	Specifies filter conditions. You can specify at most five filter conditions. Valid values of **n**: **1 to 5**. You can specify multiple values for each filter condition. The logical operator among multiple values is OR. If one value is matched, the filter condition is met. The logical operator among multiple filter conditions is AND, in which case all the filter conditions must be met for an HAVIP to be included in the result. The following filter conditions are available: • **VpcId**: the ID of the virtual private cloud (VPC). • **VSwitchId**: the ID of the vSwitch. • **Status**: the status of the HAVIP. • **HaVipId**: the ID of the HAVIP. • **HaVipAddress**: the IP address of the HAVIP.
Filter.N.Value.N	RepeatList	No	1	Specifies the value of the filter condition. Valid values of **N**: **1 to 5**.

Response parameters

Parameter	Type	Example	Description
HaVips	Array of HaVip		The details about the HAVIP.
HaVip			
AssociatedEipAddresses	List	121.XX.XX.1	The list of elastic IP addresses (EIPs) that are associated with the HAVIP.
AssociatedInstanceType	String	EcsInstance	The type of the instance that is associated with the HAVIP.
AssociatedInstances	List	i-bp145q7glnuzdvzu21****	The Elastic Compute Service (ECS) instances that are associated with the HAVIP.
ChargeType	String	none	The parameter is invalid. No value is returned.
CreateTime	String	2018-07-03T14:25:26Z	The time when the HAVIP was created.
Description	String	My HaVip	The description of the HAVIP.
HaVipId	String	havip-bp149uyvut73dpld****	The ID of the HAVIP.
IpAddress	String	192.XX.XX.27	The private IP address of the HAVIP.
MasterInstanceId	String	i-bp145q7glnuzdvz****	The ID of the instance that has obtained the private IP address of the HAVIP.
Name	String	test	The name of the HAVIP.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the HAVIP is deployed.
Status	String	Available	The status of the HAVIP.
VSwitchId	String	vsw-bp1pkt1fba8e824ez****	The ID of the vSwitch to which the HAVIP belongs.

Parameter	Type	Example	Description
VpcId	String	vpc-bp1kcm36tevkpms9****	The ID of the VPC to which the HAVIP belongs.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	33E480C5-B46F-4CA5-B6FD-D77C746E86AB	The ID of the request.
TotalCount	Integer	1	The total number of entries returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeHaVips
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeHaVipsResponse>
  <TotalCount>1</TotalCount>
  <HaVips>
        <Status>Available</Status>
        <Description>My HaVip</Description>
        <VpcId>vpc-bp1kcm36tevkpms9****</VpcId>
        <MasterInstanceId>i-bp145q7glnuzdvz****</MasterInstanceId>
        <ChargeType>none</ChargeType>
        <CreateTime>2018-07-03T14:25:26Z</CreateTime>
        <VSwitchId>vsw-bp1pkt1fba8e824ez****</VSwitchId>
        <IpAddress>192.XX.XX.27</IpAddress>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <HaVipId>havip-bp149uyvut73dpld****</HaVipId>
        <AssociatedInstanceType>EcsInstance</AssociatedInstanceType>
        <Name>test</Name>
        <AssociatedInstances>i-bp145q7glnuzdvzu21****</AssociatedInstances>
        <AssociatedEipAddresses>121.XX.XX.1</AssociatedEipAddresses>
  </HaVips>
  <PageSize>10</PageSize>
  <RequestId>33E480C5-B46F-4CA5-B6FD-D77C746E86AB</RequestId>
  <PageNumber>1</PageNumber>
</DescribeHaVipsResponse>
```

`JSON` format


```
{
    "DescribeHaVipsResponse": {
        "TotalCount": 1,
        "HaVips": {
            "Status": "Available",
            "Description": "My HaVip",
            "VpcId": "vpc-bp1kcm36tevkpms9****",
            "MasterInstanceId": "i-bp145q7glnuzdvz****",
            "ChargeType": "none",
            "CreateTime": "2018-07-03T14:25:26Z",
            "VSwitchId": "vsw-bp1pkt1fba8e824ez****",
            "IpAddress": "192.XX.XX.27",
            "RegionId": "cn-qingdao-env17-d01",
            "HaVipId": "havip-bp149uyvut73dpld****",
            "AssociatedInstanceType": "EcsInstance",
            "Name": "test",
            "AssociatedInstances": "i-bp145q7glnuzdvzu21****",
            "AssociatedEipAddresses": "121.XX.XX.1"
        },
        "PageSize": 10,
        "RequestId": "33E480C5-B46F-4CA5-B6FD-D77C746E86AB",
        "PageNumber": 1
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	The error message returned because Filter.X.key is not supported.

15.1.2.1.17.3. ModifyHaVipAttribute

Modifies the description of a high-availability virtual IP address (HAVIP).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyHaVipAttribute	The operation that you want to perform. Set the value to: **ModifyHaVipAttribute**.
HaVipId	String	Yes	havip-2zeo05qre24nhrqp****	The ID of the HAVIP that you want to modify.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the HAVIP belongs. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e0****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Description	String	No	This is my HaVip.	The description of the HAVIP.
Name	String	No	test	The name of the HAVIP. The name must be 2 to 128 characters in length and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C44F62BE-9CE7-4277-B117-69243F3988BF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyHaVipAttribute
&HaVipId=havip-2zeo05qre24nhrqp****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyHaVipAttributeResponse>
  <RequestId>C44F62BE-9CE7-4277-B117-69243F3988BF</RequestId>
</ModifyHaVipAttributeResponse>
```

`JSON` format

```
{
"RequestId": "C44F62BE-9CE7-4277-B117-69243F3988BF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidHaVipId.NotFound	The specified HaVip does not exist in the specified region.	The error message returned because the HAVIP does not exist in the specified region. Specify another region ID and try again.
400	IncorrectStatus	HaVip can be deleted only when it's status is Available or InUse.	The error message returned because the HAVIP is unavailable and failed to be deleted.
400	InvalidDescription.Malformed	The specified Description is wrongly formed.	The error message returned because the format of the specified description is invalid. The description must be 2 to 256 characters in length. It cannot start with http:// or https://.

15.1.2.1.17.4. AssociateHaVip

Associates a high-availability virtual IP address (HAVIP) with an Elastic Compute Service (ECS) instance.

Descriptions

When you call this operation, take note of the following limits:

- The HAVIP takes effect immediately after it is associated with an ECS instance in a VPC. You do not need to restart the ECS instance. However, you must associate the HAVIP with the elastic network interface (ENI) of the ECS instance.
- The HAVIP and ECS instance must belong to the same vSwitch.
- You can associate an HAVIP with at most two ECS instances.
- The ECS instance must be in the Running or Stopped state.
- The HAVIP must be in the **Available** or **InUse** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateHaVip	The operation that you want to perform. Set the value to **AssociateHaVip**.
HaVipId	String	Yes	havip-2zeo05qre24nhrqpyf***	The ID of the HAVIP.
InstanceId	String	Yes	i-faf344422ffsfa*****	The ID of the ECS instance that you want to associate.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the HAVIP belongs. You can call the `DescribeRegions` to query the most recent region list.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe63****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.
InstanceType	String	No	ecs.g6.large	The instance type.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C44F62BE-9CE7-4277-B117-69243F3988BF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateHaVip
&HaVipId=havip-2zeo05qre24nhrqpyf***
&InstanceId=i-faf344422ffsfa****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssociateHaVipResponse>
  <RequestId>C44F62BE-9CE7-4277-B117-69243F3988BF</RequestId>
</AssociateHaVipResponse>
```

`JSON` format

```
{
"RequestId": "C44F62BE-9CE7-4277-B117-69243F3988BF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidHaVipId.NotFound	The specified HaVip does not exist in the specified region.	The error message returned because the specified HAVIP does not exist in the specified region. Check the region.
404	InvalidInstanceId.NotFound	The specified Instance does not exist in the specified region.	The error message returned because the instance does not exist in the specified region.
400	IncorrectHaVipStatus	HaVip can be operated by this action only when it's status is Available or InUse.	The error message returned because this operation can be performed only when the HAVIP is in the Available or InUse state.
400	CountLimitExceed.HaVipOnInstance	The amount of HaVip associated with the specified Instance reach its limits.	The error message returned because the number of HAVIPs has reached the upper limit.
400	CountLimitExceeded.HaVipOnECSInstance	The amount of Instance associated with the specified HaVip reach its limits.	The error message returned because the number of HAVIPs has reached the upper limit.
400	InvalidNetworkInterfaceId.NotFound	The network interface is not found.	The error message returned because the specified ENI does not exist.

15.1.2.1.17.5. UnassociateHaVip

Disassociates a high-availability virtual IP address (HAVIP) from an Elastic Compute Service (ECS) instance in a virtual private cloud (VPC).

Descriptions

When you call this operation, take note of the following limits:

- The ECS instance must be in the Running or Stopped state.
- The HAVIP must be in the **Available** or **InUse** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateHaVip	The operation that you want to perform. Set the value to **UnassociateHaVip**.
HaVipId	String	Yes	havip-2zeo05qre24nhrqpyf****	The ID of the HAVIP.
InstanceId	String	Yes	i-faf344422ffsfa******	The ID of the ECS instance that you want to disassociate.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the HAVIP. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe63****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.
InstanceType	String	No	ecs.g5.large	The type of the ECS instance.
Force	String	No	True	Specifies whether to forcibly disassociate the HAVIP from the ECS instance. Valid values: **True** and **False** (default). **Note** If you set this parameter to **False**, you cannot disassociate the HAVIP from a primary ECS instance.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C44F62BE-9CE7-4277-B117-69243F3988BF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateHaVip
&HaVipId=havip-2zeo05qre24nhrqpyf****
&InstanceId=i-faf344422ffsfa****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociateHaVipResponse>
  <RequestId>C44F62BE-9CE7-4277-B117-69243F3988BF</RequestId>
</UnassociateHaVipResponse>
```

`JSON` format

```
{
"RequestId": "C44F62BE-9CE7-4277-B117-69243F3988BF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidHaVipId.NotFound	The specified HaVip does not exist in the specified region.	The error message returned because the specified HAVIP does not exist in the specified region. Check whether the region is correct.
404	InvalidInstanceId.NotFound	The specified Instance does not exist in the specified region.	The error message returned because the instance does not exist in the specified region.
400	IncorrectHaVipStatus	HaVip can be operated by this action only when it's status is InUse.	The error message returned because the operation can be performed only when the HAVIP is in the InUse state.

HttpCode	Error code	Error message	Description
400	IncorrectInstanceStatus	ECS instance can be operated by this action only when it's status is Running or Stopped.	The error message returned because the operation can be performed only when the ECS instance is in the Running or Stopped state.
400	ResourceNotAssociated	The HaVip and ECS instance are not associated.	The error message returned because the HAVIP is not associated with the ECS instance.
400	Forbidden.UnassociateMaster	Unassociating a master instance is not allowed unless the parameter Force is True.	The error message returned because the Force parameter is set to False.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	InvalidNetworkInterfaceId.NotFound	The network interface is not found.	The error message returned because the specified elastic network interface (ENI) does not exist.

15.1.2.1.17.6. DeleteHaVip

Deletes a high-availability virtual IP address (HAVIP).

When you call this operation, take note of the following rules:

- You can delete only HAVIPs that are in the **Available** state.
- Make sure that no routes are destined for the HAVIP that you want to delete.
- Make sure that no elastic IP addresses (EIPs) are associated with the HAVIP that you want to delete.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteHaVip	The operation that you want to perform. Set the value to **DeleteHaVip**.
HaVipId	String	Yes	havip-2zeo05qre24nhrqpyf****	The ID of the HAVIP that you want to delete.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to create an HAVIP. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C44F62BE-9CE7-4277-B117-69243F3988BF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteHaVip
&HaVipId=havip-2zeo05qre24nhrqpyf****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteHaVipResponse>
  <RequestId>C44F62BE-9CE7-4277-B117-69243F3988BF</RequestId>
</DeleteHaVipResponse>
```

`JSON` format

```
{
"RequestId": "C44F62BE-9CE7-4277-B117-69243F3988BF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidHaVipId.NotFound	The specified HaVip does not exist in the specified region.	The error message returned because the specified HAVIP does not exist in the specified region. Check the region.
400	IncorrectStatus	HaVip can be deleted only when it is status is Available.	The error message returned because the HAVIP cannot be deleted. The error message returned because the HAVIP is not in the Available state.
400	DependencyViolation.HaVipReferedByRouteEntry	HaVip cannot be deleted when it is refered by a route table entry as next hop.	The error message returned because the HAVIP functions as the next hop of a route entry and cannot be deleted. You must delete the route entry before you can delete the HAVIP.
400	DependencyViolation.HaVipAssociatedWithEIP	HaVip cannot be deleted when it is associated with EIP.	The error message returned because the HAVIP is associated with an elastic IP address (EIP) and cannot be deleted.

15.1.2.1.18. ACLs

15.1.2.1.18.1. CreateNetworkAcl

Creates a network access control list (ACL).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateNetworkAcl	The operation that you want to perform. Set the value to **CreateNetworkAcl**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs. You can call the `DescribeRegions` operation to the most recent region list.
VpcId	String	Yes	vpc-dsfd34356vdf****	The ID of the virtual private cloud (VPC) to which you want to apply the network ACL.

Parameter	Type	Required	Example	Description
NetworkAclName	String	No	acl-1	The name of the network ACL. The name must be 2 to 128 characters in length, and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter and cannot start with `http://` or `https://`.
Description	String	No	This is my NetworkAcl.	The description of the network ACL. The description must be 2 to 256 characters in length. The description must start with a letter but cannot start with `http://` or `https://`.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
NetworkAclAttribute	Struct		The attributes of the network ACL.
CreationTime	String	2019-04-25 11:33:27	The time when the network ACL was created.
Description	String	This is my NetworkAcl.	The description of the network ACL.
EgressAclEntries	Array of EgressAclEntry		The outbound rules.
EgressAclEntry			
Description	String	This is EgressAclEntries.	The description of the outbound rule.
DestinationCidrIp	String	10.0.0.0/24	The destination CIDR block.

Parameter	Type	Example	Description
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule. • **system**: a system rule.
NetworkAclEntryId	String	nae-a2d447uw4tillxsdc****	The ID of the outbound rule.
NetworkAclEntryName	String	acl-2	The name of the outbound rule.
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The destination ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp** • **gre** • **tcp** • **udp** • **all**: all protocols supported
IngressAclEntries	Array of IngressAclEntry		The inbound rules.
IngressAclEntry			
Description	String	This is IngressAclEntries.	The description of the inbound rule.
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule. • **system**: a system rule.
NetworkAclEntryId	String	nae-a2dk86arlydmexscd****	The ID of the inbound rule.

Parameter	Type	Example	Description
NetworkAclEntryName	String	acl-3	The name of the inbound rule.
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The source ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp** • **gre** • **tcp** • **udp** • **all**: all protocols supported
SourceCidrIp	String	10.0.0.0/24	The source CIDR block.
NetworkAclId	String	nacl-a2do9e413e0spdefr****	The description of the network ACL.
NetworkAclName	String	acl-1	The name of the network ACL.
RegionId	String	cn-qingdao-env17-d01	The region where the network ACL is deployed.
Resources	Array of Resource		The resources that are associated with the network ACL.
Resource			
ResourceId	String	vsw-bp1de348lntdwgthy****	The ID of the associated resource.
ResourceType	String	VSwitch	The type of the associated resource.

Parameter	Type	Example	Description
Status	String	BINDED	The state of the associated resource. Valid values: • **BINDED**: The resource is associated with the network ACL. • **BINDING**: The resource is being associated with the network ACL. • **UNBINDING**: The resource is disassociated from the network ACL.
Status	String	Modifying	The state of the network ACL. Valid values: • **Available**: The network ACL is available for use. • **Modifying**: The network ACL is being configured.
VpcId	String	vpc-a2d33rfpl72k5xsscd****	The ID of the VPC to which the network ACL applies.
NetworkAclId	String	nacl-a2do9e413e0spzasx****	The description of the network ACL.
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateNetworkAcl
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-dsfd34356vdf****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateNetworkAclResponse>
  <NetworkAclId>nacl-a2do9e413e0spzasx****</NetworkAclId>
  <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
  <NetworkAclAttribute>
        <Status>Modifying</Status>
        <Description>This is my NetworkAcl.</Description>
        <VpcId>vpc-a2d33rfpl72k5xsscd****</VpcId>
        <NetworkAclId>nacl-a2do9e413e0spdefr****</NetworkAclId>
        <CreationTime>2019-04-25 11:33:27</CreationTime>
        <NetworkAclName>acl-1 </NetworkAclName>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <IngressAclEntries>
              <Policy>accept</Policy>
              <Description>This is IngressAclEntries. </Description>
              <EntryType>custom</EntryType>
              <Port>-1/-1 </Port>
              <SourceCidrIp>10.0.0.0/24 </SourceCidrIp>
              <NetworkAclEntryName>acl-3 </NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2dk86arlydmexscd****</NetworkAclEntryId>
        </IngressAclEntries>
        <EgressAclEntries>
              <Policy>accept</Policy>
              <Description>This is EgressAclEntries.</Description>
              <EntryType>custom</EntryType>
              <DestinationCidrIp>10.0.0.0/24</DestinationCidrIp>
              <Port>-1/-1 </Port>
              <NetworkAclEntryName>acl-2</NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2d447uw4tillxsdc****</NetworkAclEntryId>
        </EgressAclEntries>
        <Resources>
              <Status>BINDED</Status>
              <ResourceId>vsw-bp1de348lntdwgthy****</ResourceId>
              <ResourceType>VSwitch</ResourceType>
        </Resources>
  </NetworkAclAttribute>
</CreateNetworkAclResponse>
```

`JSON` format

```
{
    "NetworkAclId": "nacl-a2do9e413e0spzasx****",
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0",
    "NetworkAclAttribute": {
        "Status": "Modifying",
        "Description": "This is my NetworkAcl.",
        "VpcId": "vpc-a2d33rfpl72k5xsscd****",
        "NetworkAclId": "nacl-a2do9e413e0spdefr****",
        "CreationTime": "2019-04-25 11:33:27",
        "NetworkAclName": "acl-1",
        "RegionId": "cn-qingdao-env17-d01",
        "IngressAclEntries": {
            "Policy": "accept",
            "Description": "This is IngressAclEntries.",
            "EntryType": "custom",
            "Port": "-1/-1",
            "SourceCidrIp": "10.0.0.0/24",
            "NetworkAclEntryName": "acl-3",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2dk86arlydmexscd****"
        },
        "EgressAclEntries": {
            "Policy": "accept",
            "Description": "This is EgressAclEntries.",
            "EntryType": "custom",
            "DestinationCidrIp": "10.0.0.0/24",
            "Port": "-1/-1",
            "NetworkAclEntryName": "acl-2",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2d447uw4tillxsdc****"
        },
        "Resources": {
            "Status": "BINDED",
            "ResourceId": "vsw-bp1de348lntdwgthy****",
            "ResourceType": "VSwitch"
        }
    }
}
```


15.1.2.1.18.2. AssociateNetworkAcl

Associates a network access control list (ACL) with a vSwitch.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateNetworkAcl	The operation that you want to perform. Set the value to **AssociateNetworkAcl**.

Parameter	Type	Required	Example	Description
NetworkAclId	String	Yes	nacl-a2do9e413e0spxscd****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs. You can call the `DescribeRegions` operation to query the most recent region list.
Resource.N.ResourceType	String	No	VSwitch	The type of the resource with which you want to associate the network ACL. Set the value to **VSwitch**.
Resource.N.ResourceId	String	No	vsw-bp1de348lntdwbgnh****	The ID of the resource with which you want to associate the network ACL.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4CF20CC7-D1FC-425B-A15B-DF7C8E2131A7	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateNetworkAcl
&NetworkAclId=nacl-a2do9e413e0spxscd****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssociateNetworkAclResponse>
     <RequestId>4CF20CC7-D1FC-425B-A15B-DF7C8E2131A7</RequestId>
</AssociateNetworkAclResponse>
```

`JSON` format

```
{
    "RequestId":"4CF20CC7-D1FC-425B-A15B-DF7C8E2131A7"
}
```

15.1.2.1.18.3. ModifyNetworkAclAttributes

Modifies the attributes of a network access control list (ACL).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNetworkAclAttributes	The operation that you want to perform. Set the value to **ModifyNetworkAclAttributes**.
NetworkAclId	String	Yes	acl-bp1lhl0taik****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The region where to which the network ACL belongs. You can call the `DescribeRegions` operation to query the most recent region list.
NetworkAclName	String	No	acl-1	The name of the network ACL. The name must be 2 to 128 characters in length, and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter and cannot start with `http://` or `https://`.
Description	String	No	This is my NetworkAcl.	The description of the network ACL. The description must be 2 to 256 characters in length. The description must start with a letter but cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It must be 1 to 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	8F76C3E4-B39F-465D-B8B3-50BAF03CA833	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyNetworkAclAttributes
&NetworkAclId=acl-bp1lhl0taik****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success response

`XML` format

```
<ModifyNetworkAclAttributesResponse>
     <RequestId>8F76C3E4-B39F-465D-B8B3-50BAF03CA833</RequestId>
</ModifyNetworkAclAttributesResponse>
```

`JSON` format

```
{
    "RequestId": "8F76C3E4-B39F-465D-B8B3-50BAF03CA833"
    }
```

15.1.2.1.18.4. UpdateNetworkAclEntries

Updates the rules of a network access control list (ACL).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UpdateNetworkAclEntries	The operation that you want to perform. Set the value to **UpdateNetworkAclEntries**.
NetworkAclId	String	Yes	nacl-bp1lhl0taikrzxsc****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The region to which the network ACL belongs. You can call the **DescribeRegions** operation to query the most recent region list.
IngressAclEntries.N.NetworkAclEntryName	String	No	acl-3	The name of the inbound rule.
IngressAclEntries.N.NetworkAclEntryId	String	No	nae-2zepn32de59j8m4****	The ID of the inbound rule.
IngressAclEntries.N.Policy	String	No	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
IngressAclEntries.N.Protocol	String	No	all	The transport layer protocols. Valid values: • **icmp**: Internet Control Message Protocol (ICMP) • **gre**: Generic Routing Encapsulation (GRE) • **tcp**: TCP • **udp**: UDP • **all**: All protocols are supported.
IngressAclEntries.N.SourceCidrIp	String	No	10.0.0.0/24	The source CIDR block.
IngressAclEntries.N.Port	String	No	-1/-1	The source ports.

Parameter	Type	Required	Example	Description
IngressAclEntries.N.EntryType	String	No	custom	The type of the rule. Valid values: • **custom** (default): a custom rule. • **system**: a system rule.
IngressAclEntries.N.Description	String	No	This is IngressAclEntries.	The description of the inbound rule.
EgressAclEntries.N.NetworkAclEntryName	String	No	acl-2	The name of the outbound rule.
EgressAclEntries.N.NetworkAclEntryId	String	No	nae-2zecs97e0brcge46****	The ID of the outbound rule.
EgressAclEntries.N.Policy	String	No	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
EgressAclEntries.N.Protocol	String	No	all	The transport layer protocols. Valid values: • **icmp**: ICMP • **gre**: GRE • **tcp**: TCP • **udp**: UDP • **all**: All protocols are supported.
EgressAclEntries.N.DestinationCidrIp	String	No	10.0.0.0/24	The destination CIDR block.
EgressAclEntries.N.Port	String	No	-1/-1	The destination ports.
EgressAclEntries.N.EntryType	String	No	custom	The type of the rule. Valid values: • **custom** (default): a custom rule • **system**: a system rule
EgressAclEntries.N.Description	String	No	This is EgressAclEntries.	The description of the outbound rule.

Parameter	Type	Required	Example	Description
UpdateIngressAclEntries	Boolean	No	false	Specifies whether to update the inbound rule. Valid rules: • **true**: updates the inbound rule. • **false** (default): does not update the inbound rule.
UpdateEgressAclEntries	Boolean	No	false	Specifies whether to update the outbound rule. Valid rules: • **true**: updates the outbound rule. • **false** (default): does not update the outbound rule.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to guarantee the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	1170A5A0-E760-4331-9133-A7D38D973215	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UpdateNetworkAclEntries
&NetworkAclId=nacl-bp1lhl0taikrzxsc****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UpdateNetworkAclEntriesResponse>
     <RequestId>1170A5A0-E760-4331-9133-A7D38D973215</RequestId>
</UpdateNetworkAclEntriesResponse>
```

`JSON` format

```
{
    "RequestId": "1170A5A0-E760-4331-9133-A7D38D973215"
}
```

15.1.2.1.18.5. UnassociateNetworkAcl

Disassociates a network access control list (ACL) from a vSwitch.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateNetworkAcl	The operation that you want to perform. Set the value to **UnassociateNetworkAcl**.
NetworkAclId	String	Yes	nacl-a2do9e413e0sp****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the network ACL is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Resource.N.ResourceType	String	No	VSwitch	The type of the resource associated with the network ACL.
Resource.N.ResourceId	String	No	vsw-bp1de348lntdw****	The ID of the associated resource.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	AD024BAA-2D91-48FD-810B-8FB7489B6EE6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateNetworkAcl
&NetworkAclId=nacl-a2do9e413e0sp****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success response

`XML` format

```
<UnassociateNetworkAclResponse>
     <RequestId>AD024BAA-2D91-48FD-810B-8FB7489B6EE6</RequestId>
</UnassociateNetworkAclResponse>
```

`JSON` format

```
{
    "RequestId": "AD024BAA-2D91-48FD-810B-8FB7489B6EE6"
    }
```

15.1.2.1.18.6. CopyNetworkAclEntries

Copies rules of a network access control list (ACL).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CopyNetworkAclEntries	The operation that you want to perform. Set the value to **CopyNetworkAclEntries**.
NetworkAclId	String	Yes	nacl-a2do9e413e0sp****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs. You can call the `DescribeRegions` operation to query the most recent region list.
SourceNetworkAclId	String	Yes	nacl-ghuo9ehg3e0sp*****	The ID of the network ACL whose rules you want to copy.

Response parameters

Parameter	Type	Example	Description
RequestId	String	6608E72F-F276-440F-ABEF-419971CEC4D1	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CopyNetworkAclEntries
&NetworkAclId=nacl-a2do9e413e0sp****
&RegionId=cn-qingdao-env17-d01
&SourceNetworkAclId=nacl-ghuo9ehg3e0sp****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CopyNetworkAclEntriesResponse>
     <RequestId>6608E72F-F276-440F-ABEF-419971CEC4D1</RequestId>
</CopyNetworkAclEntriesResponse>
```

`JSON` format

```
{
    "RequestId": "6608E72F-F276-440F-ABEF-419971CEC4D1"
    }
```

15.1.2.1.18.7. DeleteNetworkAcl

Deletes a network access control list (ACL).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteNetworkAcl	The operation that you want to perform. Set the value to **DeleteNetworkAcl**.
NetworkAclId	String	Yes	nacl-bp1q8bgx4xnkm****	The ID of the network ACL.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	34F1206D-04B0-4A05-9D8A-80521E288BD1	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteNetworkAcl
&NetworkAclId=nacl-bp1q8bgx4xnkm****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNetworkAclResponse>
     <RequestId>34F1206D-04B0-4A05-9D8A-80521E288BD1</RequestId>
</DeleteNetworkAclResponse>
```

`JSON` format

```
{
    "RequestId": "34F1206D-04B0-4A05-9D8A-80521E288BD1"
    }
```

15.1.2.1.18.8. DescribeNetworkAcls

Queries network ACLs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeNetworkAcls	The operation that you want to perform. Set the value to **DescribeNetworkAcls**.
RegionId	String	Yes	cn-qingdao-env17-d01	The region where the network ACL is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
NetworkAclId	String	No	nacl-bp1lhl0taikrbgnh****	The description of the network ACL.
NetworkAclName	String	No	acl-1	The name of the network ACL. The name must be 2 to 128 characters in length, and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter and cannot start with `http://` or `https://`.
VpcId	String	No	vpc-1234****	The ID of the VPC to which the network ACL applies.
ResourceType	String	No	VSwitch	The type of the associated instance. Set the value to **VSwitch**. This parameter is valid only when `ResourceType` and `ResourceId` are both set.
ResourceId	String	No	vsw-bp1de348lntdwnhbg****	The ID of the associated instance. This parameter is valid only when `ResourceType` and `ResourceId` are both set.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Pages start from page 1. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe63****	The token used to ensure idempotence. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
NetworkAcls	Array of NetworkAcl		The details about the network ACL.
NetworkAcl			
CreationTime	String	2019-04-25 11:44:17	The time when the network ACL was created.
Description	String	This is my NetworkAcl.	The description of the network ACL.
EgressAclEntries	Array of EgressAclEntry		The outbound rules.
EgressAclEntry			
Description	String	This is EgressAclEntries.	The description of the outbound rule.
DestinationCidrIp	String	10.0.0.0/24	The destination CIDR block.
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule • **system**: a system rule

Parameter	Type	Example	Description
NetworkAclEntryId	String	nae-a2d447uw4tillfvgb****	The ID of the outbound rule.
NetworkAclEntryName	String	acl-2	The name of the outbound rule.
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The destination ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp**: Internet Control Message Protocol (ICMP) • **gre**: Generic Routing Encapsulation (GRE) • **tcp**: TCP • **udp**: UDP • **all**: All protocols are supported.
IngressAclEntries	Array of IngressAclEntry		Information about inbound rules.
IngressAclEntry			
Description	String	This is IngressAclEntries.	The description of the inbound rule.
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule • **system**: a system rule
NetworkAclEntryId	String	nae-a2dk86arlydmezasw****	The ID of the inbound rule.
NetworkAclEntryName	String	acl-3	The name of the inbound rule.

Parameter	Type	Example	Description
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The source ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp**: ICMP • **gre**: GRE • **tcp**: TCP • **udp**: UDP • **all**: All protocols are supported.
SourceCidrIp	String	10.0.0.0/24	The source CIDR block.
NetworkAclId	String	nacl-a2do9e413e0spxscd****	The ID of the network ACL.
NetworkAclName	String	acl-8	The name of the network ACL.
OwnerId	Long	12345678	The ID of the Apsara Stack tenant account to which the network ACL belongs.
RegionId	String	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs.
Resources	Array of Resource		The resources that are associated with the network ACL.
Resource			
ResourceId	String	vsw-bp1de348lntdwcdf*****	The ID of the resource with which you want to associate the network ACL.
ResourceType	String	VSwitch	The type of the associated resource.

Parameter	Type	Example	Description
Status	String	BINDED	The status of the associated resource. Valid values: • **BINDED**: The resource is associated with the network ACL. • **BINDING**: The resource is being associated with the network ACL. • **UNBINDING**: The resource is disassociated from the network ACL.
Status	String	Available	The status of the network ACL. Valid values: • **Available**: The network ACL is available for use. • **Modifying**: The network ACL is being configured.
VpcId	String	vpc-a2d33rfpl72k5defr****	The ID of the associated VPC.
PageNumber	String	1	The page number of the returned page.
PageSize	String	10	The number of entries on the current page.
RequestId	String	F7DDDC17-FA06-4AC2-8F35-59D2470FCFC1	The ID of the request.
TotalCount	String	2	The total number of entries returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeNetworkAcls
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeNetworkAclsResponse>
  <TotalCount>2</TotalCount>
  <NetworkAcls>
        <Status>Available</Status>
        <Description>This is my NetworkAcl.</Description>
        <OwnerId>12345678</OwnerId>
        <VpcId>vpc-a2d33rfpl72k5defr****</VpcId>
        <NetworkAclId>nacl-a2do9e413e0spxscd****</NetworkAclId>
        <CreationTime>2019-04-25 11:44:17</CreationTime>
        <NetworkAclName>acl-8</NetworkAclName>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <IngressAclEntries>
              <Policy>accept</Policy>
              <Description>This is IngressAclEntries. </Description>
              <EntryType>custom</EntryType>
              <Port>-1/-1 </Port>
              <SourceCidrIp>10.0.0.0/24 </SourceCidrIp>
              <NetworkAclEntryName>acl-3 </NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2dk86arlydmezasw****</NetworkAclEntryId>
        </IngressAclEntries>
        <EgressAclEntries>
              <Policy>accept</Policy>
              <Description>This is EgressAclEntries. </Description>
              <EntryType>custom</EntryType>
              <DestinationCidrIp>10.0.0.0/24 </DestinationCidrIp>
              <Port>-1/-1 </Port>
              <NetworkAclEntryName>acl-2 </NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2d447uw4tillfvgb****</NetworkAclEntryId>
        </EgressAclEntries>
        <Resources>
              <Status>BINDED</Status>
              <ResourceId>vsw-bp1de348lntdwcdf****</ResourceId>
              <ResourceType>VSwitch</ResourceType>
        </Resources>
  </NetworkAcls>
  <PageSize>10</PageSize>
  <RequestId>F7DDDC17-FA06-4AC2-8F35-59D2470FCFC1</RequestId>
  <PageNumber>1</PageNumber>
</DescribeNetworkAclsResponse>
```

`JSON` format

```
{
    "TotalCount": 2,
    "NetworkAcls": {
        "Status": "Available",
        "Description": "This is my NetworkAcl.",
        "OwnerId": 12345678,
        "VpcId": "vpc-a2d33rfpl72k5defr****",
        "NetworkAclId": "nacl-a2do9e413e0spxscd****",
        "CreationTime": "2019-04-25 11:44:17",
        "NetworkAclName": "acl-8",
        "RegionId": "cn-qingdao-env17-d01",
        "IngressAclEntries": {
            "Policy": "accept",
            "Description": "This is IngressAclEntries.",
            "EntryType": "custom",
            "Port": "-1/-1",
            "SourceCidrIp": "10.0.0.0/24",
            "NetworkAclEntryName": "acl-3",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2dk86arlydmezasw****"
        },
        "EgressAclEntries": {
            "Policy": "accept",
            "Description": "This is EgressAclEntries.",
            "EntryType": "custom",
            "DestinationCidrIp": "10.0.0.0/24",
            "Port": "-1/-1",
            "NetworkAclEntryName": "acl-2",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2d447uw4tillfvgb****"
        },
        "Resources": {
            "Status": "BINDED",
            "ResourceId": "vsw-bp1de348lntdwcdf****",
            "ResourceType": "VSwitch"
        }
    },
    "PageSize": 10,
    "RequestId": "F7DDDC17-FA06-4AC2-8F35-59D2470FCFC1",
    "PageNumber": 1
}
```


15.1.2.1.18.9. DescribeNetworkAclAttributes

Queries details about a network ACL.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeNetworkAclAttributes	The operation that you want to perform. Set the value to **DescribeNetworkAclAttributes**.
NetworkAclId	String	Yes	nacl-a2do9e413e0spzasx****	The ID of the network ACL.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. ClientToken can contain only ASCII characters. It cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
NetworkAclAttribute	Struct		The details about the network ACL.
CreationTime	String	2019-04-25 11:33:27	The time when the network ACL was created.
Description	String	This is my NetworkAcl.	The description of the network ACL.
EgressAclEntries	Array of EgressAclEntry		The information about outbound rules of the network ACL.
EgressAclEntry			
Description	String	This is EgressAclEntries.	The description of the outbound rule.

Parameter	Type	Example	Description
DestinationCidrIp	String	10.0.0.0/24	The destination CIDR block.
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule • **system**: a system rule
NetworkAclEntryId	String	nae-a2d447uw4tillxdcv****	The ID of the outbound rule.
NetworkAclEntryName	String	acl-2	The name of the outbound rule.
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The range of destination ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp**: Internet Control Message Protocol (ICMP) • **gre**: Generic Routing Encapsulation (GRE) • **tcp**: TCP • **udp**: UDP • **all**: all protocols supported
IngressAclEntries	Array of IngressAclEntry		The information about inbound rules of the network ACL.
IngressAclEntry			
Description	String	This is IngressAclEntries.	The description of the inbound rule.
EntryType	String	custom	The type of the rule. Valid values: • **custom**: a custom rule • **system**: a system rule

Parameter	Type	Example	Description
NetworkAclEntryId	String	nae-a2dk86arlydmevfbg****	The ID of the inbound rule.
NetworkAclEntryName	String	acl-3	The name of the inbound rule.
Policy	String	accept	The action to be performed on network traffic that matches the rule. Valid values: • **accept**: allows the network traffic. • **drop**: blocks the network traffic.
Port	String	-1/-1	The range of source ports.
Protocol	String	all	The transport layer protocols. Valid values: • **icmp**: ICMP • **gre**: GRE • **tcp**: TCP • **udp**: UDP • **all**: All protocols are supported.
SourceCidrIp	String	10.0.0.0/24	The CIDR block of the source address.
NetworkAclId	String	nacl-a2do9e413e0spnhmj****	The ID of the network ACL.
NetworkAclName	String	acl-1	Enter a name for the network ACL.
OwnerId	Long	12345678	The ID of the Alibaba Cloud account to which the network ACL belongs.
RegionId	String	cn-qingdao-env17-d01	The ID of the region to which the network ACL belongs.
Resources	Array of Resource		The resources that are associated with the network ACL.
Resource			
ResourceId	String	vsw-bp1de348lntdwxscd****	The ID of the associated resource.

Parameter	Type	Example	Description
ResourceType	String	VSwitch	The type of the associated resource.
Status	String	BINDED	The state of the associated resource. Valid values: • **BINDED**: The resource is associated with the network ACL. • **BINDING**: The resource is being associated with the network ACL. • **UNBINDING**: The resource is disassociated from the network ACL.
Status	String	Available	The state of the associated resource. Valid values: • **Available**: The network ACL is available for use. • **Modifying**: The network ACL is being configured.
VpcId	String	vpc-a2d33rfpl72k5defr****	The ID of the VPC to which the network ACL applies.
RequestId	String	F5905F9C-0161-4E72-9CB1-1F3F3CF6268A	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeNetworkAclAttributes
&NetworkAclId=nacl-a2do9e413e0spzasx****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeNetworkAclAttributesResponse>
  <RequestId>F5905F9C-0161-4E72-9CB1-1F3F3CF6268A</RequestId>
  <NetworkAclAttribute>
        <Status>Available</Status>
        <Description>This is my NetworkAcl.</Description>
        <OwnerId>12345678</OwnerId>
        <VpcId>vpc-a2d33rfpl72k5defr****</VpcId>
        <NetworkAclId>nacl-a2do9e413e0spnhmj****</NetworkAclId>
        <CreationTime>2019-04-25 11:33:27</CreationTime>
        <NetworkAclName>acl-1</NetworkAclName>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <IngressAclEntries>
              <Policy>accept</Policy>
              <Description>This is IngressAclEntries.</Description>
              <EntryType>custom</EntryType>
              <Port>-1/-1</Port>
              <SourceCidrIp>10.0.0.0/24</SourceCidrIp>
              <NetworkAclEntryName>acl-3</NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2dk86arlydmevfbg****</NetworkAclEntryId>
        </IngressAclEntries>
        <EgressAclEntries>
              <Policy>accept</Policy>
              <Description>This is EgressAclEntries.</Description>
              <EntryType>custom</EntryType>
              <DestinationCidrIp>10.0.0.0/24</DestinationCidrIp>
              <Port>-1/-1</Port>
              <NetworkAclEntryName>acl-2</NetworkAclEntryName>
              <Protocol>all</Protocol>
              <NetworkAclEntryId>nae-a2d447uw4tillxdcv****</NetworkAclEntryId>
        </EgressAclEntries>
        <Resources>
              <Status>BINDED</Status>
              <ResourceId>vsw-bp1de348lntdwxscd****</ResourceId>
              <ResourceType>VSwitch</ResourceType>
        </Resources>
  </NetworkAclAttribute>
</DescribeNetworkAclAttributesResponse>
```

`JSON` format

```
{
    "RequestId": "F5905F9C-0161-4E72-9CB1-1F3F3CF6268A",
    "NetworkAclAttribute": {
        "Status": "Available",
        "Description": "This is my NetworkAcl.",
        "OwnerId": 12345678,
        "VpcId": "vpc-a2d33rfpl72k5defr****",
        "NetworkAclId": "nacl-a2do9e413e0spnhmj****",
        "CreationTime": "2019-04-25 11:33:27",
        "NetworkAclName": "acl-1",
        "RegionId": "cn-qingdao-env17-d01",
        "IngressAclEntries": {
            "Policy": "accept",
            "Description": "This is IngressAclEntries.",
            "EntryType": "custom",
            "Port": "-1/-1",
            "SourceCidrIp": "10.0.0.0/24",
            "NetworkAclEntryName": "acl-3",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2dk86arlydmevfbg****"
        },
        "EgressAclEntries": {
            "Policy": "accept",
            "Description": "This is EgressAclEntries.",
            "EntryType": "custom",
            "DestinationCidrIp": "10.0.0.0/24",
            "Port": "-1/-1",
            "NetworkAclEntryName": "acl-2",
            "Protocol": "all",
            "NetworkAclEntryId": "nae-a2d447uw4tillxdcv****"
        },
        "Resources": {
            "Status": "BINDED",
            "ResourceId": "vsw-bp1de348lntdwxscd****",
            "ResourceType": "VSwitch"
        }
    }
}
```


15.1.2.1.19. IPv6 gateways

15.1.2.1.19.1. CreateIpv6Gateway

You can call this operation to create an IPv6 gateway.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateIpv6Gateway	The operation that you want to perform. Valid values: **CreateIpv6Gateway** .
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.
VpcId	String	Yes	vpc-123sedrfswd23****	The ID of the virtual private cloud (VPC) for which you want to create the IPv6 gateway.
Spec	String	No	Small	The specification that you want to set for the IPv6 gateway. Valid values: • **Small** (Default value): Free edition. • **Medium** : Enterprise Edition. • **Large** : Enterprise enhanced edition. IPv6 gateways of different specifications have different forwarding capabilities. For more information, see the `IPv6 Gateway Specifications` .
Name	String	No	ipv6GW	The name of the IPv6 gateway. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://` The beginning.
Description	String	No	ipv6gatewayforVPC1	The description of the IPv6 gateway. The name must be 2 to 256 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://` The beginning.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. The value of this parameter is generated by a client. The value must be unique among different requests and must be 1 to 64 ASCII characters in length.

Response parameters

Parameter	Type	Example	Description
Ipv6GatewayId	String	ipv6gw-hp3y0l3ln89j8cdvf****	The ID of the IPv6 gateway.
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateIpv6Gateway
&RegionId=cn-qingdao-env17-d01
&VpcId=vpc-123sedrfswd23****
&<Public request parameters>
```

Sample success responses

`XML` format

```
<CreateIpv6GatewayResponse>
        <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
        <Ipv6GatewayId>ipv6gw-hp3y0l3ln89j8cdvf****</Ipv6GatewayId>
</CreateIpv6GatewayResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0",
    "Ipv6GatewayId": "ipv6gw-hp3y0l3ln89j8cdvf****"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidVpcId.NotFound	Specified VPC does not exist.	The error message returned because the specified VPC does not exist.

15.1.2.1.19.2. DeleteIpv6Gateway

Deletes an IPv6 gateway.

Before you delete an IPv6 gateway of the Enterprise Edition and Enterprise Enhanced Edition, you must delete the outbound-only rule. For more information, see the DeleteIpv6EgressOnlyRule .

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteIpv6Gateway	The operation that you want to perform. Valid values: **DeleteIpv6Gateway** .
Ipv6GatewayId	String	Yes	ipv6gw-hp3y0l3ln89j8xxxxxxxx	The ID of the IPv6 gateway that you want to delete.
RegionId	String	Yes	cn-huhehaote	The ID of the region to which the IPv6 gateway belongs. You can call DescribeRegions interface to obtain the region ID.

Response parameters

Parameter	Type	Example	Description
RequestId	String	E9A8AABE-A84B-4AF2-A68A-8E2EA190E7AE	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DeleteIpv6Gateway
&Ipv6 GatewayId=ipv6gw-hp3y0l3ln89j8xxxxxxxx
&RegionId=cn-huhehaote
&<Public request parameters>
```

Sample success responses

`XML` format

```
<DeleteIpv6GatewayResponse>
  <RequestId>E9A8AABE-A84B-4AF2-A68A-8E2EA190E7AE</RequestId>
</DeleteIpv6GatewayResponse>
```

`JSON` format

```
{
   "RequestId": "E9A8AABE-A84B-4AF2-A68A-8E2EA190E7AE"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because RegionId is set to an invalid value. Check whether the service is available in the specified region.

15.1.2.1.19.3. DescribeIpv6Gateways

Queries IPv6 gateways that you have created.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeIpv6Gateways	The operation that you want to perform. Valid values: **DescribeIpv6GateWays** .
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the IPv6 gateway belongs. You can call `DescribeRegions` interface to obtain the region ID.
Ipv6GatewayId	String	No	ipv6gw-123456****	The ID of the IPv6 gateway.
VpcId	String	No	vpc-123456****	The ID of the virtual private cloud (VPC) to which the IPv6 gateway belongs.
Name	String	No	ipv6GW****	The name of the IPv6 gateway.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to query.
PageSize	Integer	No	10	The number of entries to return on each page.

Response parameters

Parameter	Type	Example	Description
Ipv6Gateways	Array of Ipv6Gateway		The details about the IPv6 gateways.
Ipv6Gateway			
BusinessStatus	String	Normal	The status of the IPv6 gateway. Valid values: • **Normal** : normal. • **FinancialLocked** : The overdue payment is locked.
CreationTime	String	2018-12-20T14:51:23Z	The time when the IPv6 gateway was created.
Description	String	descriptionforIPv6GW	The description of the IPv6 gateway.
ExpiredTime	String	2018-12-20T14:51:23Z	The time when the IPv6 gateway expires.
InstanceChargeType	String	PostPaid	The metering method of the IPv6 gateway.
Ipv6GatewayId	String	ipv6gw-hp3rwmtmfhgis****	The ID of the IPv6 gateway.
Name	String	name	The name of the IPv6 gateway.
RegionId	String	cn-qingdao-env17-d01	The region ID of the IPv6 gateway to which the IPv6 address belongs.
Spec	String	Small	The specification of the IPv6 gateway.

Parameter	Type	Example	Description
Status	String	Available	The status of the IPv6 gateway.
VpcId	String	vpc-123456****	The ID of the virtual private cloud (VPC) to which the IPv6 gateway belongs.
PageNumber	Integer	1	The number of the page to query.
PageSize	Integer	19	The number of entries returned per page.
RequestId	String	E3A06196-3E7C-490D-8F39-CB4B5A0CE8AD	The ID of the request.
TotalCount	Integer	2	The total number of entries returned.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DescribeIpv6Gateways
&RegionId=cn-huhehaote
&Common request parameter
```

Sample success responses

`XML` format

```
<DescribeIpv6GatewaysResponse>
      <PageNumber>1</PageNumber>
      <Ipv6Gateways>
            <Ipv6Gateway>
                  <Name></Name>
                  <CreationTime>2018-12-20T14:51:23Z</CreationTime>
                  <Status>Available</Status>
                  <Description></Description>
                  <BusinessStatus>Normal</BusinessStatus>
                  <Spec>Medium</Spec>
                  <RegionId>cn-huhehaote</RegionId>
                  <InstanceChargeType>PostPaid</InstanceChargeType>
                  <ExpiredTime></ExpiredTime>
                  <VpcId>vpc-hp3ag7ydchedxxxxxxxxx</VpcId>
                  <Ipv6GatewayId>ipv6gw-hp33of4uz4k4kxxxxxxxx</Ipv6GatewayId>
            </Ipv6Gateway>
            <Ipv6Gateway>
                  <CreationTime>2018-12-05T09:21:35Z</CreationTime>
                  <Name>IPv6 gateway</Name>
                  <Status>Available</Status>
                  <Description></Description>
                  <BusinessStatus>Normal</BusinessStatus>
                  <Spec>Medium</Spec>
                  <RegionId>cn-huhehaote</RegionId>
                  <InstanceChargeType>PostPaid</InstanceChargeType>
                  <ExpiredTime></ExpiredTime>
                  <VpcId>vpc-hp3kzilwd9yflxxxxxxxx</VpcId>
                  <Ipv6GatewayId>ipv6gw-hp33p10bdbt77xxxxxxxx</Ipv6GatewayId>
            </Ipv6Gateway>
      </Ipv6Gateways>
      <TotalCount>2</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>E3A06196-3E7C-490D-8F39-CB4B5A0CE8AD</RequestId>
</DescribeIpv6GatewaysResponse>
```

`JSON` format

```
    { "DescribeIpv6GatewaysResponse": { "TotalCount": 2, "PageSize": 19, "RequestId": "E3A
06196-3E7C-490D-8F39-CB4B5A0CE8AD", "PageNumber": 1, "Ipv6Gateways": { "Status": "Available
", "Description": "descriptionforIPv6GW", "VpcId": "vpc-123456****", "InstanceChargeType":
"PostPaid", "ExpiredTime": "2018-12-20T14:51:23Z", "CreationTime": "2018-12-20T14:51:23Z",
"Ipv6GatewayId": "ipv6gw-hp3rwmtmfhgis****", "RegionId": "cn-qingdao-env17-d01", "Spec": "S
mall", "BusinessStatus": "Normal", "Name": "name" } } }
```

15.1.2.1.19.4. ModifyIpv6GatewaySpec

Changes the specification of an IPv6 gateway.

Different specifications have different forwarding capabilities and bandwidths. For more information, see `IPv6 Gateway Specifications` .

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyIpv6GatewaySpec	The operation that you want to perform. Valid values: **ModifyIpv6GatewaySpec** .
Ipv6GatewayId	String	Yes	ipv6gw-123456****	The ID of the IPv6 gateway with which the egress-only rules are configured.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.
Spec	String	Yes	Middle	The new specification that you want to set for the IPv6 gateway. Valid values: • **Small** (Default value): Free edition. • **Middle** : Enterprise Edition. • **Large** : Enterprise enhanced edition.
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. The value of this parameter is generated by a client. The value must be unique among different requests and must be 1 to 64 ASCII characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=ModifyIpv6GatewaySpec
&RegionId=cn-huhehaote
&Ipv6GatewayId=ipv6gw-123456xxxxxxxx
&Spec=Middle
&Common request parameter
```

Sample success responses

`XML` format

```
<ModifyIpv6GatewaySpecResponse>
      <RequestId>9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75</RequestId>
</ModifyIpv6GatewaySpecResponse>
```

`JSON` format

```
{
    "RequestId": "9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.5. DescribeIpv6EgressOnlyRules

You can call this operation to query the egress-only rules that match specific conditions.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeIpv6EgressOnlyRules	The operation that you want to perform. Valid values: **DescribeIpv6EgressOnlyRules** .
Ipv6GatewayId	String	Yes	ipv6gw-123456********	The ID of the IPv6 gateway with which the egress-only rules are configured.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.
Ipv6EgressOnlyRuleId	String	No	ipv6gwpy-123456********	The ID of the egress-only rule that you want to query.
Name	String	No	rulename	The name of the egress-only rule.

Parameter	Type	Required	Example	Description
InstanceType	String	No	Ipv6Address	The type of the instance to which you want to apply the egress-only rule. Set the value to: **Ipv6Address** : an IPv6 address.
InstanceId	String	No	i-123456********	The ID of the instance that is associated with the IPv6 address to which the egress-only rule is applied.
PageNumber	Integer	No	1	The page number of the list. Default value: **1** .
PageSize	Integer	No	10	The number of rows per page in a paged query. The maximum value is **50** , the default value is **10** .

Response parameters

Parameter	Type	Example	Description
Ipv6EgressOnlyRules	Array of Ipv6EgressOnlyRule		The details about the egress-only rule.
Ipv6EgressOnlyRule			
Description	String	ruledescription	The description of the egress-only rule.
InstanceId	String	i-123456********	The ID of the instance to which the egress-only rule is applied.
InstanceType	String	Ipv6Address	The type of the instance to which the egress-only rule is applied.
Ipv6EgressOnlyRuleId	String	ipv6gwpy-123456********	The ID of the egress-only rule.
Name	String	rulename	The name of the egress-only rule.
Status	String	Available	The status of the egress-only rule.

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the list. Default value: **1** .
PageSize	Integer	10	The number of rows per page in a paged query. The maximum value is **50** , the default value is **10** .
RequestId	String	E16671B7-DEA6-48E0-8E9C-41913DAD44DD	The ID of the request.
TotalCount	Integer	1	The number of returned entries.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DescribeIpv6EgressOnlyRules
&RegionId=cn-huhehaote
&Ipv6GatewayId=ipv6gw-123456xxxxxxxx
&Common request parameter
```

Sample success responses

`XML` format

```
<DescribeIpv6EgressOnlyRulesResponse>
      <Ipv6EgressOnlyRules>
            <Ipv6EgressOnlyRule>
                  <Name></Name>
                  <Status>Available</Status>
                  <Description></Description>
                  <InstanceId>ipv6-hp3b5a8t12ihyxxxxxxxx</InstanceId>
                  <Ipv6EgressOnlyRuleId>ipv6py-hp3w98rmlbqp0xxxxxxxx</Ipv6EgressOnlyRuleId>
                  <InstanceType>Ipv6Address</InstanceType>
            </Ipv6EgressOnlyRule>
      </Ipv6EgressOnlyRules>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>D1FFB517-D1A7-49BA-9169-C7E7194A9B55</RequestId>
</DescribeIpv6EgressOnlyRulesResponse>
```

`JSON` format

```
{
    "Ipv6EgressOnlyRules": {
        "Ipv6EgressOnlyRule": [
            {
                "Name": "",
                "Status": "Available",
                "Description": "",
                "InstanceId": "ipv6-hp3b5a8t12ihyxxxxxxxx",
                "Ipv6EgressOnlyRuleId": "ipv6py-hp3w98rmlbqp0xxxxxxxx",
                "InstanceType": "Ipv6Address"
            }
        ]
    },
    "PageNumber": 1,
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "D1FFB517-D1A7-49BA-9169-C7E7194A9B55"
}
```


15.1.2.1.19.6. CreateIpv6EgressOnlyRule

Creates an egress-only rule for an IPv6 address.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateIpv6EgressOnlyRule	The operation that you want to perform. Valid values: **CreateIpv6EgressOnlyRule** .
InstanceId	String	Yes	ipv6-hp3nxjkfxn5pnhgl5****	The ID of the IPv6 address with which the egress-only rule will be configured.
Ipv6GatewayId	String	Yes	ipv6gw-hp3c2paq0ywauasza****	The ID of the IPv6 gateway to which the specified IPv6 address belongs.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.
InstanceType	String	No	IPv6Address	The type of the instance that will be configured with the egress-only rule. Set the value to: **Ipv6Address** (Default),IPv6 address.

Parameter	Type	Required	Example	Description
Name	String	No	rulename	The name of the egress-only rule. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://` The beginning.
Description	String	No	ruledescription	The description of the egress-only rule. The name must be 2 to 256 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://` The beginning.
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. The value of this parameter is generated by a client. The value must be unique among different requests and must be 1 to 64 ASCII characters in length.

Response parameters

Parameter	Type	Example	Description
Ipv6EgressRuleId	String	ipv6py-hp3w98rmlbqp01245****	The ID of the egress-only rule.
RequestId	String	9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=CreateIpv6EgressOnlyRule
&RegionId=cn-huhehaote
&InstanceId=ipv6-hp3nxjkfxn5pnhgl5****
&Ipv6GatewayId=ipv6gw-hp3c2paq0ywauasza****
&Common request parameter
```

Sample success responses

`XML` format

```
<CreateIpv6EgressOnlyRuleResponse>
      <RequestId>9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75</RequestId>
      <Ipv6EgressRuleId>ipv6py-hp3w98rmlbqp01245****</Ipv6EgressRuleId>
</CreateIpv6EgressOnlyRuleResponse>
```

`JSON` format

```
    { "CreateIpv6EgressOnlyRuleResponse": { "Ipv6EgressRuleId": "ipv6py-hp3w98rmlbqp01245*
***", "RequestId": "9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75" } }
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.7. DeleteIpv6EgressOnlyRule

Deletes an egress-only rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteIpv6EgressOnlyRule	The operation that you want to perform. Set the value to **DeleteIpv6EgressOnlyRule**.
Ipv6EgressOnlyRuleId	String	Yes	ipv6py-hp3w98rmlbqp0xxxxxxx	The ID of the egress-only rule that you want to delete.
RegionId	String	Yes	cn-huhehaote	The ID of the IPv6 gateway.
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DeleteIpv6EgressOnlyRule
&RegionId=cn-huhehaote
&Ipv6GatewayId=ipv6gw-123456
&Ipv6EgressOnlyRuleId=ipv6py-hp3w98rmlbqp0xxxxxxxx
&Common request parameter
```

Sample success responses

`XML` format

```
<DeleteIpv6EgressOnlyRuleResponse>
   <RequestId>9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75</RequestId>
</DeleteIpv6EgressOnlyRuleResponse>
```

`JSON` format

```
{
 "RequestId": "4E40EAF1-783D-4C05-948D-DA0426C398C1"
}
```

15.1.2.1.19.8. DeleteIpv6InternetBandwidth

Sets the Internet bandwidth value of an IPv6 address to zero.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteIpv6InternetBandwidth	The operation that you want to perform. Set the value to **DeleteIpv6InternetBandwidth**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-huhehaote	The ID of the region where the IPv6 gateway is deployed. You can call the DescribeRegions operation to query the most recent region list.
Ipv6AddressId	String	No	ipv6-123456xxxxxxxx	The ID of the IPv6 address.
Ipv6InternetBandwidthId	String	No	2	The Internet bandwidth value of the IPv6 address.

Response parameters

Parameter	Type	Example	Description
RequestId	String	E07E0FE6-5C21-405F-AF82-7613AA81EF92	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DeleteIpv6InternetBandwidth
&RegionId=cn-huhehaote
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteIpv6InternetBandwidthResponse>
   <RequestId>6972A26E-99B1-4367-9890-FBDEBB0F5E7D</RequestId>
</DeleteIpv6InternetBandwidthResponse>
```

`JSON` format

```
{
 "RequestId": "E07E0FE6-5C21-405F-AF82-7613AA81EF92"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

15.1.2.1.19.9. DescribeIpv6GatewayAttribute

You can call this operation to query the details of an IPV6 gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeIpv6GatewayAttribute	The operation that you want to perform. Valid values: **DescribeIpv6GatewayAttribute** .
Ipv6GatewayId	String	Yes	ipv6gw-123456********	The ID of the IPv6 gateway to query.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.

Response parameters

Parameter	Type	Example	Description
BusinessStatus	String	Normal	The status of the IPv6 gateway. Valid values: • **Normal** : normal. • **FinacialLocked** : The overdue payment is locked. • **SecurityLocked** : Security locked.
CreationTime	String	2018-12-05T09:21:35Z	The time when the IPv6 gateway was created.
Description	String	test	The description of the IPv6 gateway.
ExpiredTime	String	2018-12-05T09:21:35Z	The time when the IPv6 gateway expires.
InstanceChargeType	String	PostPaid	The metering method of the IPv6 gateway.

Parameter	Type	Example	Description
Ipv6GatewayId	String	ipv6gw-123456********	The ID of the IPv6 gateway.
Name	String	test	The name of the IPv6 gateway.
RegionId	String	cn-qingdao-env17-d01	The ID of the region where the IPv6 gateway is deployed.
RequestId	String	ipv6gw-hp33p10bdbt77**********	The ID of the request.
Spec	String	Medium	The specification of the IPv6 gateway.
Status	String	Available	The status of the IPv6 gateway.
VpcId	String	vpc-123456********	The ID of the virtual private cloud (VPC) to which the IPv6 gateway belongs.

Examples

Sample requests

```
https://vpc.cn-huhehaote.aliyuncs.com/?Action=DescribeIpv6GatewayAttribute
&Ipv6GatewayId=ipv6gw-hp33p10bdbt77xxxxxxxx
&RegionId=cn-huhehaote
&Common request parameter
```

Sample success responses

`XML` format

```
<DescribeIpv6GatewayAttributeResponse>
      <Name>ipv6gateway</Name>
      <CreationTime>2018-12-05T09:21:35Z</CreationTime>
      <Status>Available</Status>
      <Description></Description>
      <BusinessStatus>Normal</BusinessStatus>
      <Spec>Medium</Spec>
      <RequestId>F4517005-A716-40EB-8B80-F6AF8508B25F</RequestId>
      <RegionId>cn-huhehaote</RegionId>
      <InstanceChargeType>PostPaid</InstanceChargeType>
      <ExpiredTime></ExpiredTime>
      <VpcId>vpc-hp3kzilwd9yflxxxxxxxx</VpcId>
      <Ipv6GatewayId>ipv6gw-hp33p10bdbt77xxxxxxxx</Ipv6GatewayId>
</DescribeIpv6GatewayAttributeResponse>
```

`JSON` format


```
{ "DescribeIpv6GatewayAttributeResponse": { "Status": "Available", "Description": "test", "RequestId": "ipv6gw-hp33p10bdbt77********", "InstanceChargeType": "PostPaid", "Ipv6GatewayId": "ipv6gw-123456********", "BusinessStatus": "Normal", "Name": "test", "VpcId": "vpc-123456********", "ExpiredTime": "2018-12-05T09:21:35Z", "CreationTime": "2018-12-05T09:21:35Z", "RegionId": "cn-qingdao-env17-d01", "Spec": "Medium" } }
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.10. DescribeIpv6Addresses

You can call this operation to query one or more IPv6 addresses.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeIpv6Addresses	The operation that you want to perform. Valid values: **DescribeIpv6Addresses** .
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the IPv6 address resides. You can call `DescribeRegions` interface to obtain the region ID.
Ipv6AddressId	String	No	ipv6gw-hp33of4uz4k4k**********	The ID of the IPv6 address. You can enter up to 20 instance IDs for each call, separated by commas (,).
Ipv6Address	String	No	2408:xxxx:180:1701:94c7:bc38:3bfa:d2c	The IPv6 address that you want to query.
Name	String	No	test	The name of the IPv6 address.
AssociatedInstanceId	String	No	i-123456********	The ID of the instance that is assigned the IPv6 address.

Parameter	Type	Required	Example	Description
AssociatedInstanceType	String	No	EcsInstance	The type of the instance that is assigned the IPv6 address. Valid value: **EcsInstance** (Default):VPC-type ECS.
NetworkType	String	No	Public	The type of connection supported by the IPv6 address. Valid values: • **Private** : the private network communication type. • **Public** : the Internet communication type.
VpcId	String	No	vpc-123456********	The ID of the VPC to which the IPv6 address belongs.
VSwitchId	String	No	vsw-123456********	The ID of the vSwitch to which the IPv6 address belongs.
Ipv6InternetBandwidthId	String	No	1	The Internet bandwidth of the IPv6 address.
PageNumber	Integer	No	1	The page number of the list. Default value: **1** .
PageSize	Integer	No	10	The number of rows per page in a paged query. The maximum value is **50** , the default value is **10** .

Response parameters

Parameter	Type	Example	Description
Ipv6Addresses	Array of Ipv6Address		The details about the IPv6 addresses.
Ipv6Address			
AllocationTime	String	2018-12-20T14:56:09Z	The time when the IPv6 address was created.
AssociatedInstanceId	String	i-hp325kt6307888********	The ID of the instance that is assigned the IPv6 address.

Parameter	Type	Example	Description
AssociatedInstanceType	String	EcsInstance	The type of the instance associated with the IPv6 address.
Ipv6Address	String	2408:xxxx:0:2900:2901:3c61:9ff0:xxxx	The IPv6 address.
Ipv6AddressId	String	ipv6-hp32vv2klzw4*******	The ID of the IPv6 address.
Ipv6AddressName	String	test	The name of the IPv6 address.
Ipv6GatewayId	String	ipv6gw-hp38x2x0fz7********	The ID of the IPv6 gateway to which the IPv6 address belongs.
Ipv6InternetBandwidth	Struct		The information about the Internet bandwidth of the IPv6 address.
Bandwidth	Integer	2	The exclusive Internet bandwidth of the IPv6 address. Unit: Mbit/s.
BusinessStatus	String	Normal	The status of the exclusive bandwidth of the IPv6 address. Valid values: • **Normal** : normal. • **FinacialLocked** : The overdue payment is locked. • **SecurityLocked** : Security locked.
InstanceChargeType	String	PostPaid	The billing method of the IPv6 gateway. Valid values: **PostPaid** : Pay-as-you-go.
InternetChargeType	String	PayByTraffic	The metering method of the IPv6 gateway. Valid values: • **PayByTraffic** : pay-by-data-transfer. • **PayByBandwidth** : pay-by-bandwidth.
Ipv6InternetBandwidthId	String	ipv6bw-hp3b35oq1fj50kbvmxxx	The ID of the Internet bandwidth.

Parameter	Type	Example	Description
NetworkType	String	Public	The type of connection supported by the IPv6 address. Valid values: • **Private** : the private network communication type. • **Public** : the Internet communication type.
RealBandwidth	Integer	2	The peak bandwidth value of the IPv6 address. Valid value: • If the EIP Bandwidth Plan is added, then **RealBandwidth** The value of is the peak EIP Bandwidth Plan. • If not joined, then **RealBandwidth** is the Internet bandwidth of IPv6 itself. • If the IPv6 address is not added to the EIP Bandwidth Plan and no public bandwidth is purchased, **RealBandwidth** and **Bandwidth** The values of are all zero.
Status	String	Available	The status of the IPv6 address. Valid values: • **Pending** : is being configured. • **Available** : available.
VSwitchId	String	vsw-hp3123456********	The ID of the vSwitch to which the IPv6 address belongs.
VpcId	String	vpc-123456********	The ID of the VPC to which the IPv6 address belongs.
PageNumber	Integer	1	The page number of the list. Default value: **1** .
PageSize	Integer	10	The number of rows per page in a paged query. The maximum value is **50** , the default value is **10** .
RequestId	String	AA4486A8-B6AE-469E-AB09-820EF8ECFA2B	The ID of the request.
TotalCount	Integer	2	The number of returned entries.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=DescribeIpv6Addresses
&RegionId=cn-huhehaote
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeIpv6AddressesResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>2</TotalCount>
      <Ipv6Addresses>
            <Ipv6Address>
                  <Ipv6AddressId>ipv6-hp32vv2klzw4yxxxxxxxx</Ipv6AddressId>
                  <AssociatedInstanceType>EcsInstance</AssociatedInstanceType>
                  <AllocationTime>2019-01-07T05:16:23Z</AllocationTime>
                  <Ipv6InternetBandwidth>
                        <BusinessStatus></BusinessStatus>
                        <Ipv6InternetBandwidthId></Ipv6InternetBandwidthId>
                        <InternetChargeType></InternetChargeType>
                        <Bandwidth>0</Bandwidth>
                  </Ipv6InternetBandwidth>
                  <VSwitchId>vsw-hp3lyltb1dosjxxxxxxxx</VSwitchId>
                  <VpcId>vpc-hp34hflqqsjh3xxxxxxxx</VpcId>
                  <Ipv6GatewayId></Ipv6GatewayId>
                  <Status>Available</Status>
                  <NetworkType>Private</NetworkType>
                  <Ipv6Address>2408:xxxx:0:2900:2901:3c61:9ff0:8fdc</Ipv6Address>
                  <Ipv6AddressName></Ipv6AddressName>
                  <AssociatedInstanceId>i-hp325kt6307wxxxxxxxx</AssociatedInstanceId>
                  <RealBandwidth>0</RealBandwidth>
            </Ipv6Address>
            <Ipv6Address>
                  <Ipv6AddressId>ipv6-hp331xt3oqafdxxxxxxxx</Ipv6AddressId>
                  <AssociatedInstanceType>EcsInstance</AssociatedInstanceType>
                  <AllocationTime>2018-11-30T07:39:31Z</AllocationTime>
                  <Ipv6InternetBandwidth>
                        <BusinessStatus></BusinessStatus>
                        <Ipv6InternetBandwidthId></Ipv6InternetBandwidthId>
                        <InternetChargeType></InternetChargeType>
                        <Bandwidth>0</Bandwidth>
                  </Ipv6InternetBandwidth>
                  <VSwitchId>vsw-hp3ju1q8dtgfgxxxxxxxx</VSwitchId>
                  <VpcId>vpc-hp3kzilwd9yflxxxxxxxx</VpcId>
                  <Ipv6GatewayId>ipv6gw-hp33p10bdbt77xxxxxxxx</Ipv6GatewayId>
                  <Status>Available</Status>
                  <NetworkType>Private</NetworkType>
                  <Ipv6Address>2408:xxxx:c0:200:35b:cd32:c460:6aa3</Ipv6Address>
                  <Ipv6AddressName>abc</Ipv6AddressName>
                  <AssociatedInstanceId>i-hp37gpsnhjn4xxxxxxxx</AssociatedInstanceId>
                  <RealBandwidth>0</RealBandwidth>
            </Ipv6Address>
      </Ipv6Addresses>
      <PageSize>10</PageSize>
      <RequestId>AA4486A8-B6AE-469E-AB09-820EF8ECFA2B</RequestId>
</DescribeIpv6AddressesResponse>
```

`JSON` format

{ "DescribeIpv6AddressesResponse": { "TotalCount": 2, "PageSize": 10, "RequestId": "AA4486A8-B6AE-469E-AB09-820EF8ECFA2B", "PageNumber": 1, "Ipv6Addresses": { "AllocationTime": "2018-12-20T14:56:09Z", "Status": "Available", "AssociatedInstanceId": "i-hp325kt6307888*********", "VpcId": "vpc-123456********", "NetworkType": "Public", "VSwitchId": "vsw-hp3123456********", "Ipv6AddressId": "ipv6-hp32vv2klzw4********", "Ipv6GatewayId": "ipv6gw-hp38x2x0fz7********", "RealBandwidth": 2, "AssociatedInstanceType": "EcsInstance", "Ipv6Address": "2408:xxxx:0:2900:2901:3c61:9ff0:xxxx", "Ipv6AddressName": "test", "Ipv6InternetBandwidth": { "InstanceChargeType": "PostPaid", "Bandwidth": 2, "Ipv6InternetBandwidthId": "ipv6bw-hp3b35oq1fj50kbvmxxx", "BusinessStatus": "Normal", "InternetChargeType": "PayByTraffic" } } } }

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.11. ModifyIpv6InternetBandwidth

You can call this operation to modifiy the public network bandwidth of an IPv6 address.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyIpv6InternetBandwidth	The operation that you want to perform. Valid values: **ModifyIpv6InternetBandwidth** .

Parameter	Type	Required	Example	Description
Bandwidth	Long	Yes	4	The public bandwidth of the IPv6 address. Unit: Mbit /s. Valid values: **1~5000** . • When **InternetChargeType** For **PayByBandwidth** , the public bandwidth of the IPv6 address is 1 to 5000. • When **InternetChargeType** For **PayByTraffic** , the public bandwidth range of IPv6 addresses is also restricted by the IPv6 gateway specifications. ◦ **Small** (Default free edition). The public bandwidth ranges from 1 to 500. ◦ **Medium** (Enterprise Edition). The Internet bandwidth ranges from 1 to 1000. ◦ **Large** (Enterprise Enhanced Edition). The Internet bandwidth ranges from 1 to 2000.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the IPv6 gateway. You can call `DescribeRegions` interface to obtain the region ID.
Ipv6AddressId	String	No	ipv5-1233456********	The ID of the IPv6 address.
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	D560AF68-4CE8-4A5C-B3FE-469F558094D0	The ID of the request.

Examples

Sample requests

```
https://vpc.cn-huhehaote.aliyuncs.com/?Action=ModifyIpv6InternetBandwidth
&Bandwidth=3
&Ipv6AddressId=ipv6-hp351bytt9inrxxxxxxxx
&RegionId=cn-huhehaote
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyIpv6InternetBandwidthResponse>
      <RequestId>D560AF68-4CE8-4A5C-B3FE-469F558094D0</RequestId>
</ModifyIpv6InternetBandwidthResponse>
```

`JSON` format

```
{
    "RequestId": "D560AF68-4CE8-4A5C-B3FE-469F558094D0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.12. AllocateIpv6InternetBandwidth

Purchases Internet bandwidth resources for an IPv6 address.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AllocateIpv6InternetBandwidth	The operation that you want to perform. Set the value to **AllocateIpv6InternetBandwidth**.

Parameter	Type	Required	Example	Description

Bandwidth	Integer	Yes	2	The amount of Internet bandwidth resources of the IPv6 address, in Mbit/s. Valid values: **1 to 5000**.
				• If **InternetChargeType** is set to **PayByBandwidth**, the Internet bandwidth of the IPv6 address is from 1 to 5,000 Mbit/s.
				• If **InternetChargeType** is set to **PayByTraffic**, the amount of Internet bandwidth resources of the IPv6 address is limited by the specification of the IPv6 gateway.
				  ○ Small (default) specifies the Free edition and the Internet bandwidth is from 1 to 500 Mbit/s.
				  ○ Medium specifies the Medium edition and the Internet bandwidth is from 1 to 1,000 Mbit/s.
				  ○ Large specifies the Large edition and the Internet bandwidth is from 1 to 2,000 Mbit/s.

Ipv6AddressId	String	Yes	ipv6-123456xxxxxxxx	The ID of the IPv6 address.
Ipv6GatewayId	String	Yes	ipv5gw-123456xxxxxxxx	The ID of the IPv6 gateway.
RegionId	String	Yes	cn-huhehaote	The ID of the region where the IPv6 gateway is deployed. You can call the DescribeRegions operation to query the most recent region list.
InternetChargeType	String	No	PayByTraffic	The metering method of the Internet bandwidth resources of the IPv6 gateway. Valid values: • **PayByTraffic**: pay-by-data-transfer • **PayByBandwidth** (default): pay-by-bandwidth

Parameter	Type	Required	Example	Description
ClientToken	String	No	123456	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
InternetBandwidthId	String	2	The amount of Internet bandwidth resources purchased for the IPv6 gateway.
Ipv6AddressId	String	ipv6-hp352ungkzcknxxxxxxxx	The ID of the IPv6 address.
RequestId	String	6972A26E-99B1-4367-9890-FBDEBB0F5E7D	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?AllocateIpv6InternetBandwidth
&Ipv6AddressId=ipv6-123456xxxxxxxx
&Ipv6GatewayId=ipv6gw-123456xxxxxxxx
&RegionId=cn-huhehaote
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateIpv6InternetBandwidthResponse>
   <RequestId>6972A26E-99B1-4367-9890-FBDEBB0F5E7D</RequestId>
   <InternetBandwidthId>2</InternetBandwidthId>
   <Ipv6AddressId>ipv6-hp352ungkzcknxxxxxxxx</Ipv6AddressId>
</AllocateIpv6InternetBandwidthResponse>
```

`JSON` format

```
{
    "RequestId": "6972A26E-99B1-4367-9890-FBDEBB0F5E7D",
    "InternetBandwidthId": 2,
    "Ipv6AddressId": "ipv6-hp352ungkzcknxxxxxxxx"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

15.1.2.1.19.13. ModifyIpv6AddressAttribute

You can call this operation to modify the name and description of an IPv6 address.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyIpv6AddressAttribute	The operation that you want to perform. Valid values: **ModifyIpv6AddressAttribute** .
Ipv6AddressId	String	Yes	ipv6-hp32vv2klzw4yerdf****	The ID of the IPv6 address.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the IPv6 address resides. You can call `DescribeRegions` Obtain the region ID.
Name	String	No	test	The name of the IPv6 address. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter or Chinese character. But not with `http://` or `https://` The beginning.

Parameter	Type	Required	Example	Description
Description	String	No	test	The description of the IPv6 address. The name must be 2 to 256 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter or Chinese character. But not with `http://` or `https://` The beginning.

Response parameters

Parameter	Type	Example	Description
RequestId	String	D560AF68-4CE8-4A5C-B3FE-469F558094D0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/? Action=ModifyIpv6AddressAttribute
&Ipv6AddressId=ipv6-hp32vv2klzw4yerdf****
&RegionId=cn-huhehaote
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyIpv6AddressAttributeResponse>
      <RequestId>D560AF68-4CE8-4A5C-B3FE-469F558094D0</RequestId>
</ModifyIpv6AddressAttributeResponse>
```

`JSON` format

```
    { "ModifyIpv6AddressAttributeResponse": { "RequestId": "D560AF68-4CE8-4A5C-B3FE-469F55
8094D0" } }
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

15.1.2.1.19.14. ModifyIpv6GatewayAttribute

Modifies the name and description of an IPv6 gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyIpv6GatewayAttribute	The operation that you want to perform. Set the value to **ModifyIpv6GatewayAttribute**.
Ipv6GatewayId	String	Yes	ipv6gw-hp39kh1ya51yzp2lu****	The ID of the IPv6 gateway that you want to modify.
RegionId	String	Yes	cn-huhehaote	The ID of the region where the IPv6 gateway is deployed. You can call the DescribeRegions operation to query the most recent region list.
Name	String	No	ipv6name	The name of the IPv6 gateway.
Description	String	No	ipv6description	The description of the IPv6 gateway.

Response parameters

Parameter	Type	Example	Description
RequestId	String	9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=ModifyIpv6GatewayAttribute
&RegionId=cn-huhehaote
&Ipv6GatewayId=ipv6gw-hp39kh1ya51yzp2lu****
&Common request parameter
```

Sample success responses

`XML` format

```
<ModifyIpv6GatewayAttributeResponse>
   <RequestId>9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75</RequestId>
</ModifyIpv6GatewayAttributeResponse>
```

`JSON` format

```
{
 "RequestId": "9DFEDBEE-E5AB-49E8-A2DC-CC114C67AF75"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist. Check whether the region ID is valid.

16.NAT Gateway

16.1. Developer Guide

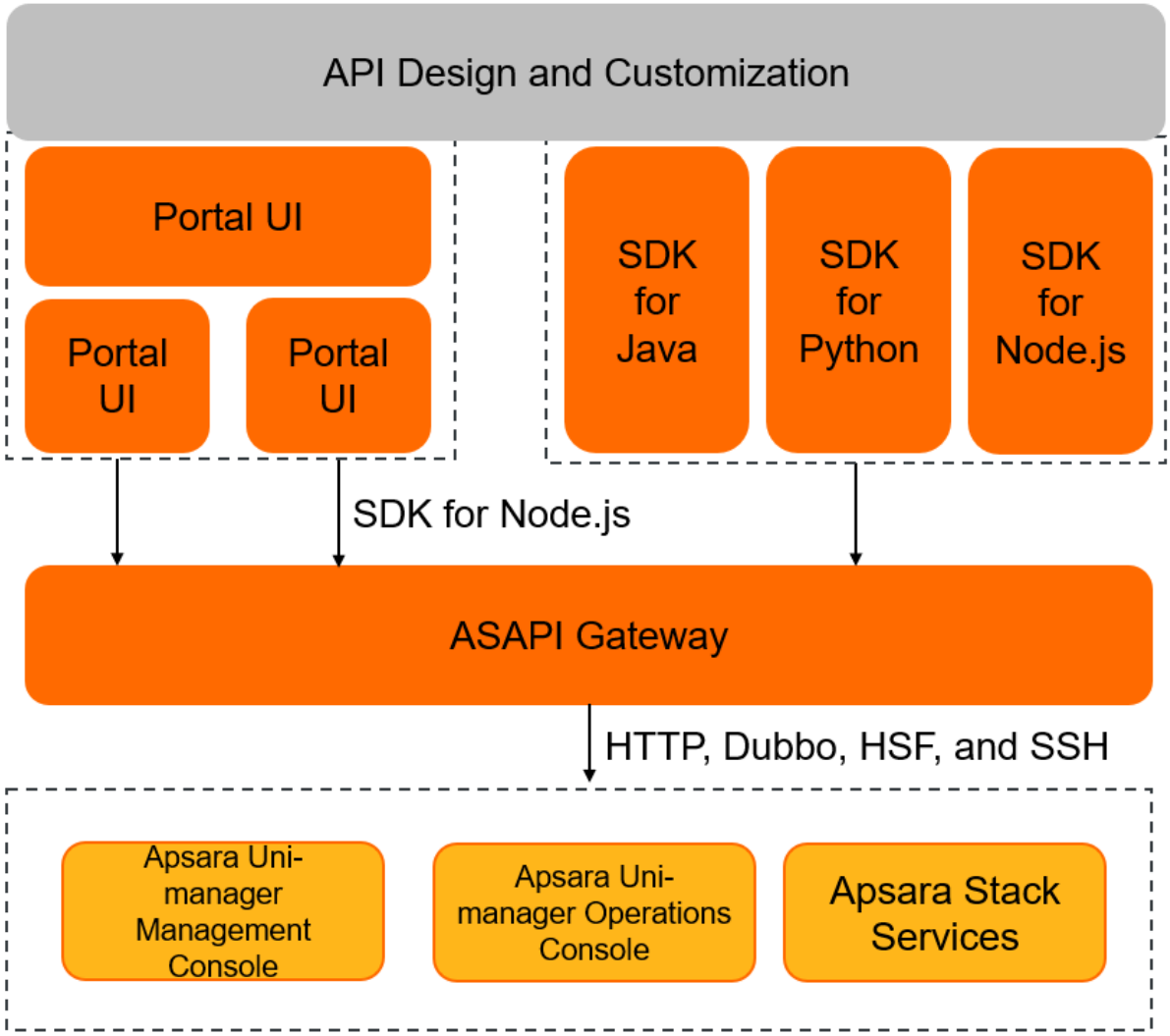
16.1.1. Make SDK calls by using ASAPI

16.1.1.1. 文档标题缺失，请补全后重新导出

16.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

16.1.1.1.2. Preparations

16.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

16.1.1.1.2.2. View information about API operations

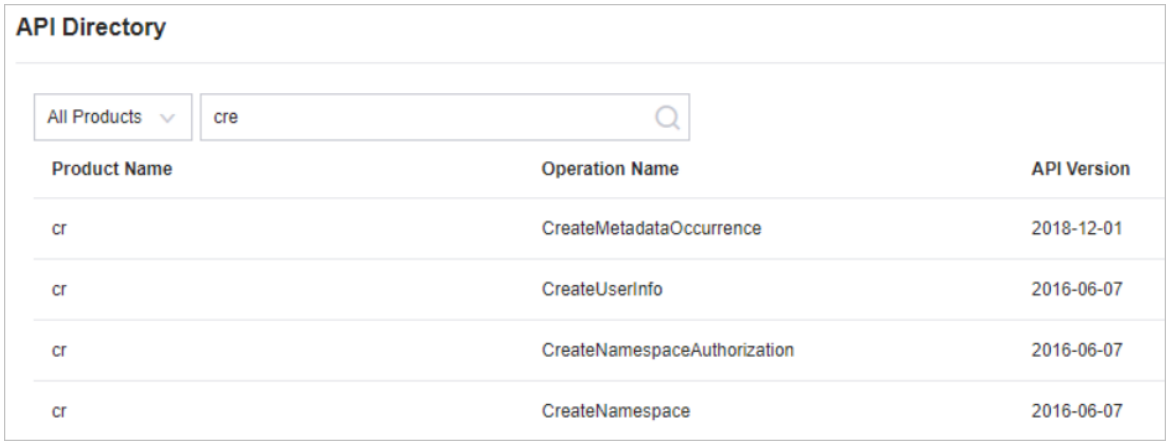
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



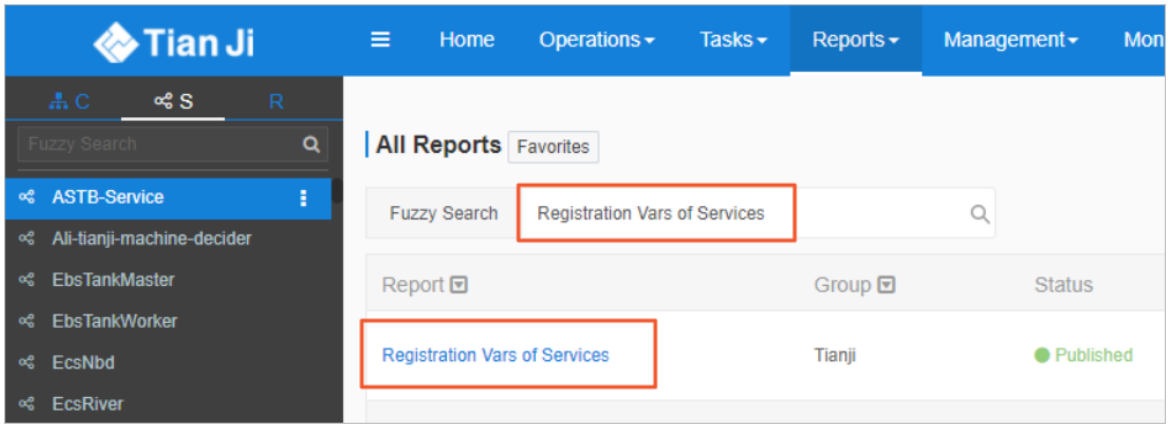
4. Then, you can view the service name, API operation name, and API operation version.

16.1.1.1.2.3. Generate an endpoint for the ASAPI

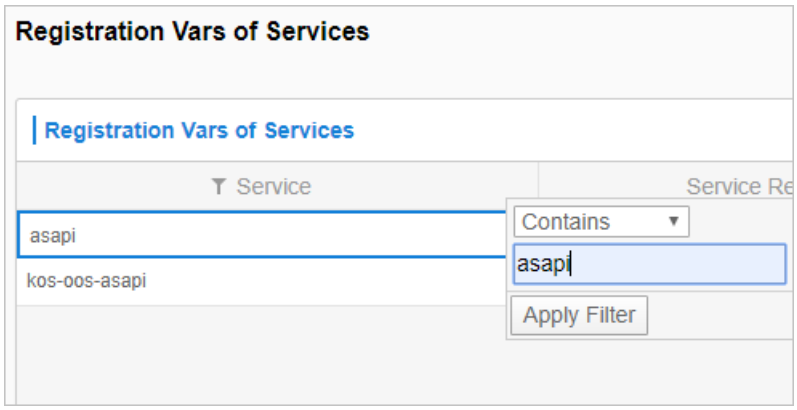
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

16.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

16.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

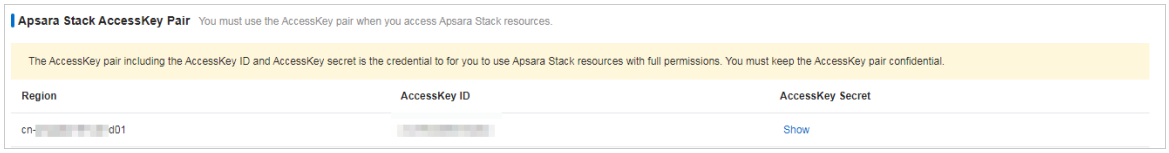
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

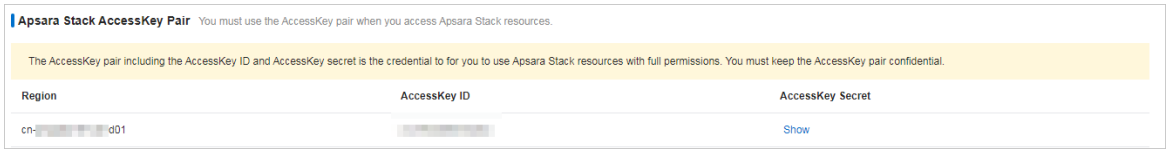
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

16.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



16.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

16.1.1.1.4. SDK description

16.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

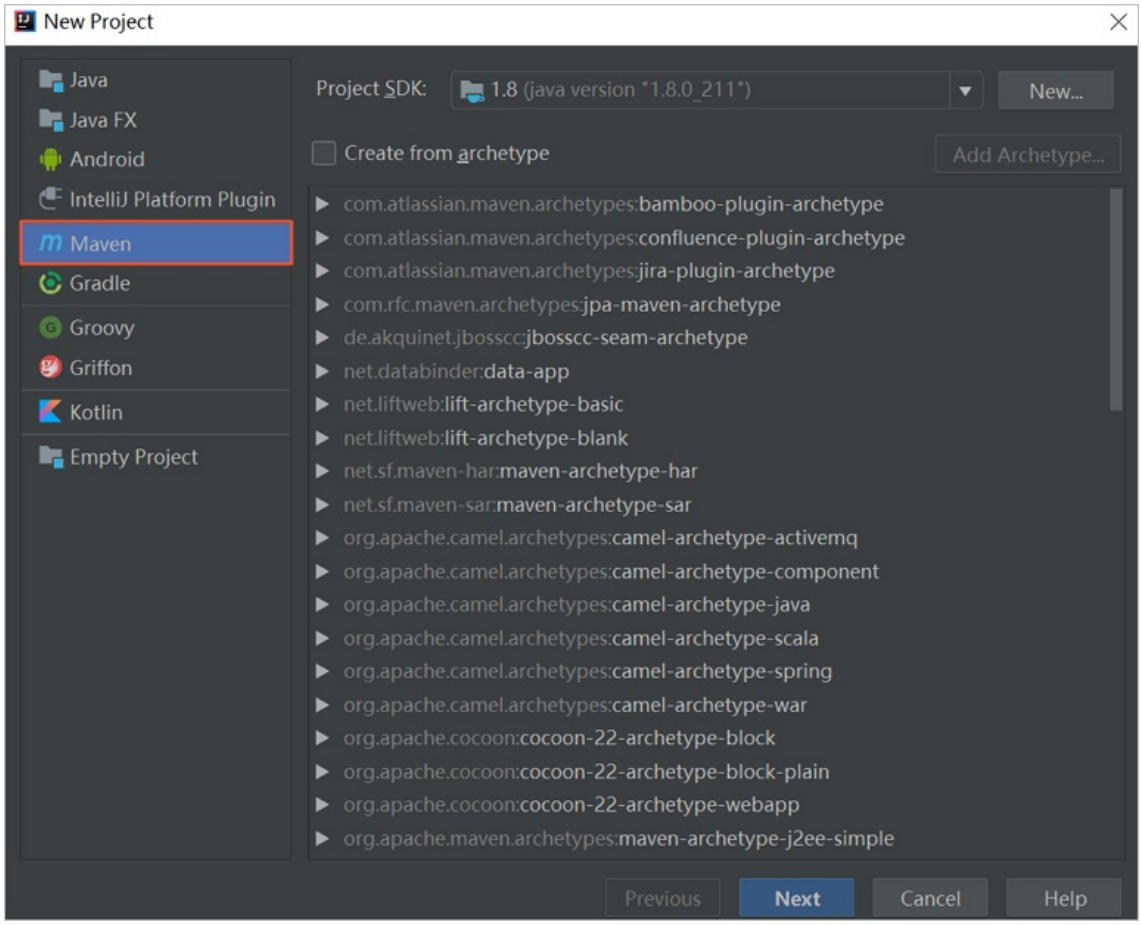
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

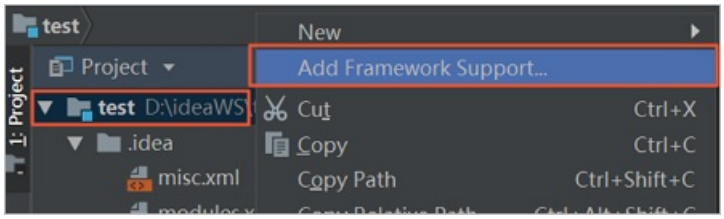
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

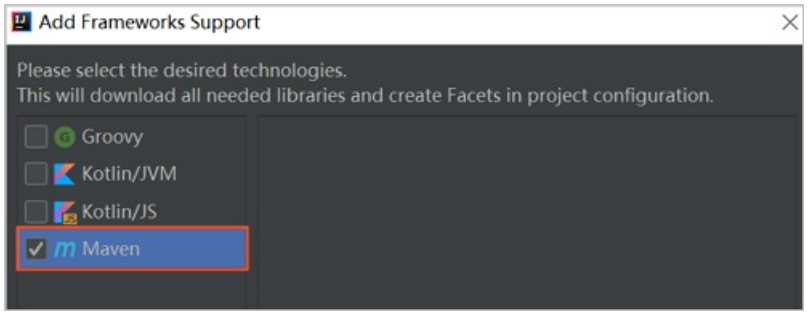
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



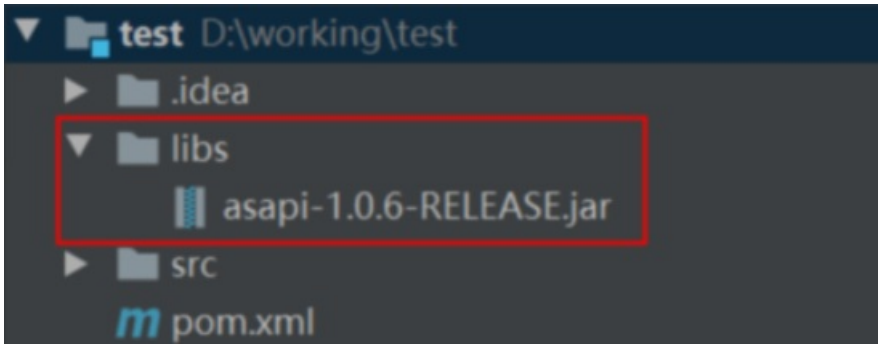
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



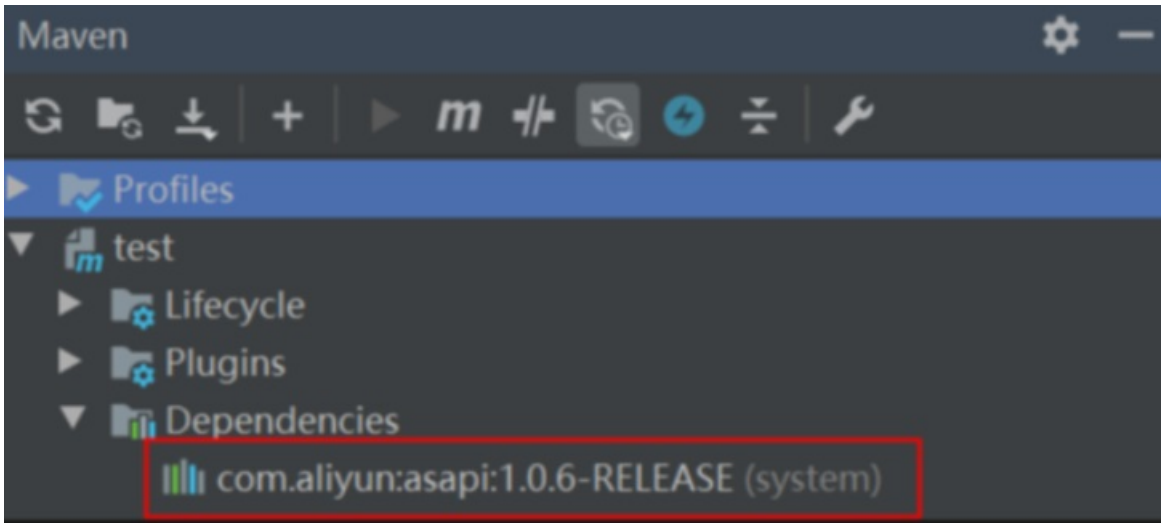
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

16.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

16.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

16.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

Notice

If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

16.1.1.1.5. HTTP requests

16.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

16.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

16.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D` .

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

16.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

16.1.2. API reference

16.1.2.1. List of operations by function

The following table lists API operations available for use in NAT Gateway.

API	Description

API	Description
ModifyNatGatewayAttribute	Modifies the name and description of a NAT gateway.
ModifyNatGatewaySpec	Resizes a NAT gateway.
DeleteNatGateway	Deletes a specified NAT gateway.
CreateForwardEntry	Adds DNAT entries to a DNAT table.
DeleteForwardEntry	Deletes a specified DNAT entry.
ModifyForwardEntry	Modifies a specified DNAT entry.
DescribeForwardTableEntries	Queries DNAT entries in a specified DNAT table.
CreateSnatEntry	Adds SNAT entries to an SNAT table.
DeleteSnatEntry	Deletes a specified SNAT entry from an SNAT table.
ModifySnatEntry	Modifies the value of SnatIp (public IP address) in a specified SNAT entry.
DescribeSnatTableEntries	Queries SNAT entries in a specified SNAT table.
CreateBandwidthPackage	Creates a NAT service plan.
ModifyBandwidthPackageSpec	Modifies the bandwidth value of a NAT service plan.
ConvertBandwidthPackage	Converts a NAT service plan to an EIP bandwidth plan.
DescribeBandwidthPackages	Queries NAT service plans in a specified region.
ModifyBandwidthPackageAttribute	Modifies the name and description of a specified NAT service plan.
DeleteBandwidthPackage	Deletes a NAT service plan.
RemoveBandwidthPackageIps	Removes a public IP address from a NAT service plan.

16.1.2.2. Make API requests

16.1.2.2.1. Request syntax

To send a NAT Gateway API request, you must send an HTTP GET request to the NAT Gateway endpoint. You must add the request parameters that correspond to the API operation being called. After you call the API operation, the system returns a response. The request and response are encoded in UTF-8.

NAT Gateway API operations use the RPC protocol. You can call NAT Gateway API operations by sending HTTP GET requests.

The following example shows the syntax of a NAT Gateway API request:

```
http://Endpoint/?Action=xx&Parameters
```

where:

- Endpoint: the endpoint of the NAT Gateway API. The endpoint of the NAT Gateway API is `vpc.example.com`.

  > **Note** `example.com` is a custom domain name. You can obtain the endpoint in the Apsara Uni-manager Operations Console. For more information, see Generate the ASAPI endpoint.

- Action: the name of the operation that you want to perform. For example, to query NAT gateways, you must set the Action parameter to DescribeNatGateways.
- Version: the version of the API that you want to call. The current NAT Gateway API version is *2016-04-28*.
- Parameters: the request parameters for the operation. Separate multiple parameters with ampersands (&).

  Request parameters include common parameters and operation-specific parameters. Common parameters include the API version and authentication information. For more information about common parameters, see Common parameters.

The following example demonstrates how to call the DescribeNatGateways operation to query NAT gateways:

> **Note** The sample requests are formatted to improve readability.

```
https://vpc.example.com/?Action=DescribeNatGateways
&Format=xml
&Version=2016-04-28
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

16.1.2.2.2. API authorization

To ensure the security of your account, we recommend that you call NAT Gateway API operations as a RAM user. To call NAT Gateway API operations as a RAM user, you must create and attach authorization policies to the RAM user.

For more information about the NAT Gateway resources and API operations that allow the authorization, see RAM authentication.

16.1.2.2.3. Request signatures

You must sign all API requests to ensure security. Apsara Stack uses the request signature to verify the identity of the API caller.

NAT Gateway implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Apsara Stack accounts and RAM users that is similar to a logon username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential. For more information about how to create an AccessKey pair, see Obtain an AccessKey pair.

You must add the signature to an RPC API request in the following format:

`https://endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=xxxx%xxxx%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`

Take DescribeNatGateways as an example. Assume that the AccessKey ID is `testid` and the AccessKey secret is `testsecret`, the following code shows the original request URL:

```
http://vpc.example.com/?Action=DescribeNatGateways
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Perform the following operations to calculate the signature:

1. Create a string-to-sign by using the request parameters:

   ```
   GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeNatGateways&Format%3DXML&SignatureMethod%
   3DHMAC-SHA1&SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&SignatureVersion%3D1.
   0&TimeStamp%3D2016-02-23T12%253A46%253A24Z&Version%3D2014-05-15
   ```

2. Calculate the HMAC value of the string-to-sign.

   Add an ampersand (&) after the AccessKey secret as the key to calculate the HMAC value. In this example, the key is `testsecret&`.

   ```
   CT9X0VtwR86fNWSnsc6v8YGOjuE=
   ```

3. Add the signature string to the request as the Signature parameter:

```
http://vpc.example.com/?Action=DescribeNatGateways
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
&Signature=xxxx%xxxx%3D
```

16.1.2.3. RAM authentication

Before you call a NAT Gateway operation as a RAM user, you must use an Apsara Stack tenant account to create an authorization policy to grant permissions to the RAM user. In the authorization policy, an Alibaba Cloud Resource Name (ARN) is used to specify a resource.

NAT Gateway resources that allow authorized access

The following table lists the NAT Gateway resources that allow authorized access and their ARNs.

Resource type	ARN
NAT gateways	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid`
	`acs:vpc:$regionid:$accountid:natgateway/*`
	`acs:vpc*:$accountid:vpc/*`
NAT bandwidth packages	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
	`acs:vpc:$regionid:$accountid:bandwidthpackage/*`
	`aacs:vpc:*:$accountid:vpc/*`
Forwarding tables	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
	`acs:vpc:$regionid:$accountid:forwardtable/*`
	`acs:vpc:*:$accountid:vpc/*`
SNAT tables	`acs:vpc:$regionid:$accountid:snattable/$snattableid`
	`acs:vpc:$regionid:$accountid:snattable/*`
	`acs:vpc:*:$accountid:vpc/*`
General resources	`acs:vpc:$regionid:$accountid:*`
	`acs:vpc:*:$accountid:*`

`$regionid/accoutid/vrouterid` are IDs of the specific resources, `*` represents all resources.

NAT Gateway API operations that allow authorized access

The following table lists the NAT Gateway API operations that allow authorized access and their ARNs.

Operation	ARN
CreateNatGateway	`acs:vpc:$regionid:$accountid:natgateway/*`
DescribeNatGateways	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:vpc:$regionid:$accountid:natgateway/*`
ModifyNatGatewaySpec	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid`
ModifyNatGatewayAttribute	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
DeleteNatGateway	`acs:vpc:$regionid:$accountid:natgateway/$natgatewayid` `acs:ecs:$regionid:$accountid:instance/$instanceid`
CreateBandwidthPackage	`acs:vpc:$regionid:$accountid:bandwidthpackage/*`
DescribeBandwidthPackages	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid` `acs:vpc:$regionid:$accountid:bandwidthpackage/*`
ModifyBandwidthPackageSpec	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
ModifyBandwidthPackageAttribute	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
AddBandwidthPackageIps	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
RemoveBandwidthPackageIps	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
DeleteBandwidthPackage	`acs:vpc:$regionid:$accountid:bandwidthpackage/$bandwidthpackageid`
CreateForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
DeleteForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
ModifyForwardEntry	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`

Operation	ARN
DescribeForwardTableEntries	`acs:vpc:$regionid:$accountid:forwardtable/$forwardtableid`
CreateSnatEntry	`acs:vpc:$regionid:$accountid:snattable/*`
ModifySnatEntry	`acs:vpc:$regionid:$accountid:snattable/$snattableid`
DescribeSnatTableEntries	`acs:vpc:$regionid:$accountid:snattable/$snattableid`
DeleteSnatEntry	`acs:vpc:$regionid:$accountid:snattable/$snattableid`

16.1.2.4. Common parameters

This topic describes common parameters, including common request parameters and common response parameters. Common parameters are required in all API operations, regardless of the operation being called.

Common request parameters

Common request parameters must be included in all EIP API requests.

Common request parameters

Parameter	Type	Required	Description
Format	String	No	The format in which to return the response. Valid values: *JSON and XML. Default value: JSON.*
Version	String	Yes	The version number of the API. Format: `YYYY-MM-DD`. Set the value to *2016-04-28*
AccessKeyId	String	Yes	The AccessKey ID provided to you by Apsara Stack.
Signature	String	Yes	The signature string of the current request.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to *HMAC-SHA1*
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC. For example, 2013-01-10T12:00:00Z.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to 1.0
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.

Examples

```
http://vpc.example.com/?Action=DescribeEipAddresses
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Common response parameters

API responses use the HTTP response format where a 2XX status code indicates a successful call and a 4XX or 5XX status code indicates a failed call. Responses can be returned in either the JSON or XML format. You can specify the response format in the request. The default response format is XML.

Every response returns a unique RequestId regardless of whether the call is successful.

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
      <!—Result Root Node-->
      <Interface Name+Response>
      <!—Return Request Tag-->
      <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
      <!—Return Result Data-->
      </Interface Name+Response>
```

- JSON format

```
{
      "RequestId":"4C467B38-3910-447D-87BC-AC049166F216",
      /*Return Result Data*/
  }
```

16.1.2.5. NAT gateways

16.1.2.5.1. ModifyNatGatewayAttribute

Modifies the name and description of a NAT gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNatGatewayAttribute	The operation that you want to perform. Set the value to **ModifyNatGatewayAttribute**.
NatGatewayId	String	Yes	ngw-2ze0dcn4mq31qx2jc****	The ID of the NAT gateway that you want to modify.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	nat123	The name of the NAT gateway that you want to modify. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`. **Note** You must specify at least one of the following parameters: **Name** and **Description**.
Description	String	No	fortest	The description of the NAT gateway. The description must be 2 to 256 characters in length, and must start with a letter. It cannot start with `http://` or `https://`. **Note** You must specify at least one of the following parameters: **Name** and **Description**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	AB5F62CF-2B60-4458-A756-42C9DFE108D1	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyNatGatewayAttribute
&NatGatewayId=ngw-2ze0dcn4mq31qx2jc****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyNatGatewayAttributeResponse>
  <RequestId>AB5F62CF-2B60-4458-A756-42C9DFE108D1</RequestId>
</ModifyNatGatewayAttributeResponse>
```

`JSON` format

```
{"RequestId":"AB5F62CF-2B60-4458-A756-42C9DFE108D1"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.

16.1.2.5.2. ModifyNatGatewaySpec

Resizes a NAT gateway.

Description

NAT gateways are available in different sizes. The size of a NAT gateway determines the Source Network Address Translation (SNAT) performance of the gateway, such as the maximum number of connections and the number of new connections per second. However, the data throughput is not affected.

The following table describes the correlations between different sizes of NAT gateways and SNAT performance metrics.

Size	Maximum connection	Number of new connections per second
Small	10,000	1,000
Medium	50,000	5,000
Large	200,000	10,000

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyNatGatewaySpec	The operation that you want to perform. Set the value to **ModifyNatGatewaySpec**.
NatGatewayId	String	Yes	ngw-bp1uewa15k4iy5770****	The ID of the NAT gateway.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed.
Spec	String	Yes	Small	The size of the NAT gateway. Valid values: • **Small**: a small-sized NAT gateway • **Middle**: a middle-sized NAT gateway • **Large**: a large-sized NAT gateway

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	false	Specifies whether to enable automatic payment. Valid values: • **true**: enables automatic payment. • **false**: disables automatic payment. This is the default value.
ClientToken	String	No	SHA234js121223*****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters, and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyNatGatewaySpec
&NatGatewayId=ngw-bp1uewa15k4iy5770****
&RegionId=cn-qingdao-env17-d01
&Spec=Small
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyNatGatewaySpecResponse>
      <RequestId>DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D</RequestId>
</ModifyNatGatewaySpecResponse>
```

`JSON` format

```
{
    "RequestId":"DBD4E4A2-786E-4BD2-8EB6-107FFC2B5B7D"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	NATGW_MODIFY_SPEC_SAME	The specified Spec is same with now.	The error message returned because the specified gateway size is the same as the current one.
400	InvalidParameter.Spec.ValueNotSupported	The specified Spec is not valid.	The error message returned because the specified gateway size is invalid.

16.1.2.5.3. DeleteNatGateway

Deletes a specified NAT gateway.

Note Before you delete a NAT gateway, you must disassociate NAT service plans from the NAT gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteNatGateway	The operation that you want to perform. Set the value to **DeleteNatGateway**.
NatGatewayId	String	Yes	ngw-bp1uewa15k4iy5770****	The ID of the NAT gateway.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Force	Boolean	No	false	Specifies whether to forcibly delete the NAT gateway. Valid values: • **true**: forcibly deletes the NAT gateway. • **false**: does not forcibly delete the NAT gateway.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteNatGateway
&NatGatewayId=ngw-bp1uewa15k4iy5770****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNatGatewayResponse>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
</DeleteNatGatewayResponse>
```

`JSON` format

```
{
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidNatGatewayId.NotFound	The specified NatGatewayId does not exist in our records.	The error message returned because the specified NAT gateway ID does not exist. Check whether the NAT gateway ID is valid.
400	DependencyViolation.BandwidthPackages	There are BandwidthPackages on specified NatGateway not deleted.	The error message returned because one or more NAT service plans are associated with the NAT gateway. Disassociate all NAT service plans from the NAT gateway and try again.

16.1.2.6. DNAT tables

16.1.2.6.1. CreateForwardEntry

Adds a DNAT entry to a DNAT table.

Description

Each DNAT entry consists of the following parameters: ExternalIp, ExternalPort, Protocol, InternalIp, and InternalPort. After you add a DNAT entry, the NAT gateway forwards packets of the specified protocol from [ExternalIp: ExternalPort] to [InternalIp: InternalPort] and sends responses back over the same route.

When you call this operation, take note of the following limits:

- The combinations of ExternalIp, ExternalPort, and Protocol used in DNAT entries must be unique. Requests cannot be distributed to more than one Elastic Compute Service (ECS) instance if these requests are originated from the same source IP address, received on the same port, and use the same protocol.
- The combinations of Protocol, InternalIp, and InternalPort used in DNAT entries must be unique.
- If one or more DNAT entries in the DNAT table are in the Pending or Modifying state, you cannot add DNAT entries to the DNAT table.
- The public IP address (ExternalIp) in the DNAT entry, which is used to access the Internet, must meet the following requirements:
  - If you have purchased a NAT service plan before November 3, 2017, the ExternalIp must be a public IP address in the NAT service plan.
  - If you have not purchased a NAT service plan before November 3, 2017, the ExternalIp must be an elastic IP address (EIP) associated with the NAT service plan.
  - You cannot specify the same EIP in both a DNAT entry and an SNAT entry.
- The private IP address (InternalIp) in the DNAT entry must meet the following requirements:

- The private IP address must belong to the CIDR block of the virtual private cloud (VPC) where the NAT gateway is deployed.
- The DNAT entry takes effect only when the private IP address is allocated to an ECS instance and the ECS instance is not assigned an EIP. If the private IP address is allocated to a resource other than an ECS instance, such as a high-availability virtual IP addresses (HAVIPs), Server Load Balancer (SLB) instance, or RDS instance, the DNAT entry does not take effect. Consequently, inbound traffic cannot be forwarded to the private IP address.
- You cannot specify the same EIP in both a DNAT entry and an SNAT entry.

- You can add up to 100 DNAT entries to a DNAT table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateForwardEntry	The operation that you want to perform. Set the value to **CreateForwardEntry**.
ExternalIp	String	Yes	116.XX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	Yes	8080	The public port. Valid values: **1 to 65535**.
ForwardTableId	String	Yes	ftb-bp1mbjubq34hlcqpa****	The ID of the DNAT table.
InternalIp	String	Yes	192.XX.XX.1	The destination private IP address.
InternalPort	String	Yes	80	The destination private port. Valid values: **1 to 65535**.
IpProtocol	String	Yes	TCP	The protocol that is used by the ports. Valid values: • **TCP**: forwards TCP packets. • **UDP**: forwards UDP packets. • **Any**: forwards packets of all protocols.
RegionId	String	Yes	cn-qingdao-env17-d0	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The name must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The ClientToken value can contain only **ASCII** characters and cannot exceed 64 characters in length.
PortBreak	Boolean	No	false	Specifies whether to remove limits on the port range. Valid values: **true**: removes limits on the port range. **false** (default): sets limits on the port range. **Note** When an SNAT entry and a DNAT entry use the same public IP address, and you want to specify a port number greater than 1024, set **PortBreak** to **true**.

Response parameters

Parameter	Type	Example	Description
ForwardEntryId	String	fwd-119smw5tkasdf****	The ID of the DNAT entry.
RequestId	String	A4AEE536-A97A-40EB-9EBE-53A6948A6928	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateForwardEntry
&ExternalIp=116.XX.XX.28
&ExternalPort=8080
&ForwardTableId=ftb-bp1mbjubq34hlcqpa****
&InternalIp=192.XX.XX.1
&InternalPort=80
&IpProtocol=TCP
&RegionId=cn-qingdao-env17-d0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateForwardEntryResponse>
  <RequestId>A4AEE536-A97A-40EB-9EBE-53A6948A6928</RequestId>
  <ForwardEntryId>fwd-119smw5tkasdf****</ForwardEntryId>
</CreateForwardEntryResponse>
```

`JSON` format

```
{
    "CreateForwardEntryResponse": {
        "RequestId": "A4AEE536-A97A-40EB-9EBE-53A6948A6928",
        "ForwardEntryId": "fwd-119smw5tkasdf****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	The error message returned because the specified IP address is invalid.
400	InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	The error message returned because the specified private IP address is invalid.
400	InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	The error message returned because the specified public port is invalid.
400	InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	The error message returned because the specified private port is invalid.

HttpCode	Error code	Error message	Description
400	Forbidden.DestnationIpOutOfVpcCIDR	The specified Internal Ip is Out of VPC CIDR.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC. Enter a private IP address that falls within the CIDR block of the VPC.
400	InvalidProtocal.ValueNotSupported	The specified IpProtocol does not support.	The error message returned because the specified protocol is not supported.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
404	InvalidExternalIp.NotFound	Specified External Ip address does not found on the VRouter	The error message returned because the specified public IP address does not exist.
400	Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	The error message returned because the specified public IP address is already used by an SNAT entry. Select a different IP address or delete the SNAT entry.
400	Forbindden	The specified Instance already bind eip	The error message returned because the ECS instance is associated with an EIP. Disassociate the EIP from the ECS instance before you create forwarding rules.
400	Forbidden.InternalIpOutOfVpcCIDR	The specified Internal Ip is Out of VPC CIDR.	The error message returned because the private IP address does not fall within the CIDR block of the VPC.
400	Invalid.natgwNotExist	The specified natgateway not exist.	The error message returned because the specified NAT gateway does not exist.

HttpCode	Error code	Error message	Description
400	InvalidIp.NotInNatgw	The specified Ip not belong to natgateway.	The error message returned because the specified IP address is not associated with the NAT gateway.
400	MissingParameter	Missing mandatory parameter	The error message returned because one or more required parameters are not set. Check whether you have set all required parameters.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.

16.1.2.6.2. DeleteForwardEntry

Deletes a DNAT entry.

Note You cannot delete DNAT entries if one or more DNAT entries in the DNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteForwardEntry	The operation that you want to perform. Set the value to **DeleteForwardEntry**.
ForwardEntryId	String	Yes	fwd-8vbn3bc8roygjp0g****	The ID of the DNAT entry.
ForwardTableId	String	Yes	ftb-8vbx8xu2lqj9qb334****	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteForwardEntry
&ForwardEntryId=fwd-8vbn3bc8roygjp0g****
&ForwardTableId=ftb-8vbx8xu2lqj9qb334****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteForwardEntryResponse>
  <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteForwardEntryResponse>
```

`JSON` format

```
{"RequestId":"0ED8D006-F706-4D23-88ED-E11ED28DCAC0"}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

HttpCode	Error code	Error message	Description
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
404	InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	The error message returned because the specified DNAT entry does not exist.
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
400	IncorretForwardEntryStatus	The Specified forwardEntry is not exist	The error message returned because the specified DNAT entry does not exist.
400	MissingParameter	Missing mandatory parameter	The error message returned because one or more required parameters are not set. Check whether you have set all required parameters.

16.1.2.6.3. ModifyForwardEntry

Modifies a DNAT entry.

> **Note** You cannot modify DNAT entries if one or more DNAT entries in the DNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyForwardEntry	The operation that you want to perform. The operation that you want to perform. Set the value to **ModifyForwardEntry**.

Parameter	Type	Required	Example	Description
ForwardEntryId	String	Yes	fwd-8vbn3bc8roygjp0gy3xk7	The ID of the DNAT entry.
ForwardTableId	String	Yes	ftb-8vbx8xu2lqj9qb334h0ow	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ExternalIp	String	No	116.XX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	No	80	The public port. Valid values: **1** to **65535**.
InternalIp	String	No	10.XX.XX.78	The destination private IP address.
InternalPort	String	No	80	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	No	TCP	The protocol type. Valid values: • **TCP**: forwards Transmission Control Protocol (TCP) packets. • **UDP**: forwards User Datagram Protocol (UDP) packets. • **Any**: forwards packets of all protocols.
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The description must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	24CC85DC-7700-4F09-9624-99E988C7DD03	The ID of the request.

Examples

Sample requests

```
https://vpc.aliyuncs.com/?Action=ModifyForwardEntry
&ForwardEntryId=fwd-8vbn3bc8roygjp0gy3xk7
&ForwardTableId=ftb-8vbx8xu2lqj9qb334h0ow
&RegionId= cn-hangzhou
&<Common request parameters>
```

Sample success responses

`XML` format

```
</ModifyForwardEntryResponse>
<RequestId>24CC85DC-7700-4F09-9624-99E988C7DD03</RequestId>
</ModifyForwardEntryResponse>
```

`JSON` format

```
{
    "RequestId": "24CC85DC-7700-4F09-9624-99E988C7DD03"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

HttpCode	Error code	Error message	Description
400	InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	The error message returned because the specified IP address is invalid.
400	InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	The error message returned because the specified private IP address is invalid.
400	InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	The error message returned because the specified public port is invalid.
400	InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	The error message returned because the specified private port is invalid.
400	Forbidden.DestnationIpOutOfVpcCIDR	The specified Destination Ip is Out of VPC CIDR.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC. Enter a private IP address that falls within the CIDR block of the VPC.
400	InvalidProtocal.ValueNotSupported	The specified IpProtocol does not support.	The error message returned because the specified protocol is not supported.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because the operation cannot be performed. The error message returned because one or more DNAT entries in the DNAT table are in the Pending or Modifying state.
400	QuotaExceeded	Forward entry quota exceeded in this route table.	The error message returned because one route table cannot contain more than 48 custom routes to a route table. You can submit a ticket to increase the quota.
404	InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	The error message returned because the specified DNAT entry does not exist.
404	InvalidExternalIp.NotFound	Specified External Ip address does not found on the VRouter	The error message returned because the specified public IP address does not exist.

HttpCode	Error code	Error message	Description
404	InvalidForwardTableId.NotFound	Specified forward table does not exist.	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.
400	Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	The error message returned because the specified public IP address is already used by an SNAT entry. Select a different IP address or delete the SNAT entry.
400	Forbidden.Already.Bounded	The specified instance already bounded	The error message returned because the specified instance is already associated with another DNAT entry.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the format of the specified name is invalid.

16.1.2.6.4. DescribeForwardTableEntries

Queries DNAT entries.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeForwardTableEntries	The operation that you want to perform. Set the value to **DescribeForwardTableEntries**.
ForwardTableId	String	Yes	ftb-bp1mbjubq34hlcqpa****	The ID of the DNAT table.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ForwardEntryId	String	No	fwd-8vbn3bc8roygjp0gy****	The ID of the DNAT entry that is automatically assigned.
ExternalIp	String	No	116.XX.XX.28	The public IP address of the NAT gateway.

Parameter	Type	Required	Example	Description
ExternalPort	String	No	8080	The public port. Valid values: **1** to **65535**.
InternalIp	String	No	192.XX.XX.1	The destination private IP address.
InternalPort	String	No	80	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	No	TCP	The protocol type. Valid values: • **TCP**: forwards TCP packets. • **UDP**: forwards UDP packets. • **Any**: forwards packets of all protocols.
ForwardEntryName	String	No	ForwardEntry-1	The name of the DNAT entry. The name must be 2 to 128 characters in length. It must start with a letter and cannot start with `http://` or `https://`.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
ForwardTableEntries	Array of ForwardTableEntry		The details of the DNAT entries.
ForwardTableEntry			
ExternalIp	String	116.XXX.XX.28	The public IP address of the NAT gateway.
ExternalPort	String	80	The public port.

Parameter	Type	Example	Description
ForwardEntryId	String	fwd-119smw5tk****	The ID of the DNAT entry.
ForwardEntryName	String	ForwardEntry-1	The name of the DNAT entry.
ForwardTableId	String	ftb-11tc6xgmv****	The ID of the DNAT table to which the DNAT entry belongs.
InternalIp	String	192.XX.XX.1	The private IP address.
InternalPort	String	25	The destination private port. Valid values: **1** to **65535**.
IpProtocol	String	TCP	The protocol type.
Status	String	Available	The state of the DNAT entry.
TotalCount	Integer	5	The total number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	A6C4A8B1-7561-4509-949C-20DEB40D71E6	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeForwardTableEntries
&ForwardTableId=ftb-bp1mbjubq34hlcqpa****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeForwardTableEntriesResponse>
  <TotalCount>5</TotalCount>
  <PageSize>10</PageSize>
  <RequestId>A6C4A8B1-7561-4509-949C-20DEB40D71E6</RequestId>
  <PageNumber>1</PageNumber>
  <ForwardTableEntries>
        <Status>Available</Status>
        <ExternalPort>80</ExternalPort>
        <ExternalIp>116.XXX.XX.28</ExternalIp>
        <ForwardEntryId>fwd-119smw5tk****</ForwardEntryId>
        <IpProtocol>TCP</IpProtocol>
        <InternalPort>25</InternalPort>
        <ForwardEntryName>ForwardEntry-1</ForwardEntryName>
        <InternalIp>192.XX.XX.1</InternalIp>
        <ForwardTableId>ftb-11tc6xgmv****</ForwardTableId>
  </ForwardTableEntries>
</DescribeForwardTableEntriesResponse>
```

`JSON` format

```
{
    "TotalCount": 5,
    "PageSize": 10,
    "RequestId": "A6C4A8B1-7561-4509-949C-20DEB40D71E6",
    "PageNumber": 1,
    "ForwardTableEntries": {
        "Status": "Available",
        "ExternalPort": 80,
        "ExternalIp": "116.XXX.XX.28",
        "ForwardEntryId": "fwd-119smw5tk****",
        "IpProtocol": "TCP",
        "InternalPort": 25,
        "ForwardEntryName": "ForwardEntry-1",
        "InternalIp": "192.XX.XX.1",
        "ForwardTableId": "ftb-11tc6xgmv****"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	IncorretForwardEntryStatus	Some Forward entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. One or more DNAT entries in the DNAT table are in the Pending or Modifying state.

HttpCode	Error code	Error message	Description
404	InvalidForwardTableId.NotFound	Specified forwardTableId does not exist	The error message returned because the specified DNAT table does not exist. Check the parameter value and try again.

16.1.2.7. SNAT tables

16.1.2.7.1. CreateSnatEntry

Adds an SNAT entry to an SNAT table.

Description

When you call this operation, take note of the following limits:

- The vSwitch and the Elastic Compute Service (ECS) instance specified in the SNAT entry must belong to the virtual private cloud (VPC) where the NAT gateway is deployed.
- Each vSwitch or ECS instance can be specified in only one SNAT entry.
- If a high-availability virtual IP address (HAVIP) exists in the vSwitch, you cannot create SNAT entries.
- You cannot specify the same EIP in both a DNAT entry and an SNAT entry.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSnatEntry	The operation that you want to perform. Set the value to **CreateSnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
SnatIp	String	Yes	47.XX.XX.98	The public IP addresses. Separate multiple IP addresses with commas (,).
SnatTableId	String	Yes	stb-bp190wu8io1vgev****	The ID of the SNAT table.
SourceVSwitchId	String	No	vsw-bp1nhx2s9ui5o****	The ID of the vSwitch that requires to access the Internet.

Parameter	Type	Required	Example	Description
SourceCIDR	String	No	10.1.1.0/24	The CIDR block of the vSwitch or the IP address of the ECS instance. • vSwitch granularity: specifies the CIDR block of the vSwitch, for example, 192.168.1.0/24. When an ECS instance of a vSwitch requires to access the Internet, the NAT gateway provides the SNAT service for the ECS instance. If you specify only one public IP address in the **SnatIp** parameter, the ECS instance uses the specified public IP address to access the Internet. If you specify multiple public IP addresses in the **SnatIp** parameter, the ECS instance randomly selects a public IP address from **SnatIp** to access the Internet. • ECS granularity: specifies the IP address of the ECS instance, for example, 192.168.1.0/32. When the ECS instance requires to access the Internet, the NAT gateway provides the SNAT service for the ECS instance. If you specify only one public IP address in the **SnatIp** parameter, the ECS instance uses the specified public IP address to access the Internet. If you specify multiple public IP addresses in the **SnatIp** parameter, the ECS instance randomly selects a public IP address from **SnatIp** to access the Internet. This parameter and the **SourceVSwtichId** parameter cannot be set at the same time. If the **SourceVSwitchId** parameter is set, you cannot set the **SourceCIDR** parameter. If the **SourceCIDR** parameter is set, you cannot set the **SourceVSwitchId** parameter.
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The name must be 2 to 128 characters in length, and must start with a letter. It cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
SnatEntryId	String	snat-kmd6nv8fy****	The ID of the SNAT entry.
RequestId	String	2315DEB7-5E92-423A-91F7-4C1EC9AD97C3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSnatEntry
&RegionId=cn-qingdao-env17-d01
&SnatIp=47.XX.XX.98
&SnatTableId=stb-bp190wu8io1vgev****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSnatEntryResponse>
      <RequestId>2315DEB7-5E92-423A-91F7-4C1EC9AD97C3</RequestId>
      <SnatEntryId>snat-119smw5tkx****</SnatEntryId>
</CreateSnatEntryResponse>
```

`JSON` format

```
{
    "SnatEntryId": "snat-kmd6nv8fyx****",
    "RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
400	Forbidden.SourceVSwitchId.IncludeHaVip	There is some HaVips under specified VSwitch	The error message returned because the specified vSwitch is associated with HAVIPs.
400	InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	The error message returned because the specified public IP address is invalid.
400	SNAT_IP_POOL_COUNT_TOO_MANY	The Snat pool ip too many.	The error message returned because the number of IP addresses in the SNAT IP address pool has reached the upper limit.
400	Forbidden.SnatEntryCountLimited	SNAT entry in the specified SNAT table reach it?s limit.	The error message returned because the number of SNAT entries has reached the upper limit.
400	NOT_ALLOW_USE_SOURCECIDR	The User not in nat_scope_unlimited white list. Cannot use SourceCidr param.	The error message returned because the specified private IP address does not fall within the CIDR block of the VPC.
404	InvalidVSwitchId.NotFound	The specified virtual switch does not exists.	The error message returned because the specified vSwitch does not exist. Check whether the specified ID is valid.
400	INVALID_PARAMETER	The parameter invalid.	The error message returned because the specified parameter is invalid.
400	Forbidden.SourceVSwitchId.Duplicated	The specified SourceCIDRis duplicated.	The error message returned because an SNAT entry is already created for the specified vSwitch.
404	InvalidSnatIp.NotFound	Specified SnatIp does not found on the NAT Gateway	The error message returned because the specified public IP address is not found on the NAT gateway.

HttpCode	Error code	Error message	Description
400	Forbidden.IpUsedInForwardTable	The specified SnatIp already used in forward table	The error message returned because the specified public IP address is already used by a DNAT entry. Select another public IP address or delete the DNAT entry.
400	Forbindden	The specified Instance already bind eip	The error message returned because the ECS instance is associated with an EIP. Disassociate the EIP from the ECS instance before you create forwarding rules.
400	OperationUnsupported.CidrConflict	The specified CIDR block conflicts with an existing SNAT entry.	The error message returned because the specified CIDR block conflicts with those in existing SNAT entries.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.

16.1.2.7.2. DeleteSnatEntry

Deletes a specified SNAT entry.

Note You cannot delete SNAT entries if one or more SNAT entries in the SNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSnatEntry	The operation that you want to perform. Set the value to **DeleteSnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
SnatEntryId	String	Yes	snat-bp1vcgcf8tm0plqc****	The ID of the SNAT entry.

Parameter	Type	Required	Example	Description
SnatTableId	String	Yes	stb-bp190wu8io1vgev80****	The ID of the SNAT table.
ClientToken	String	No	123e4567-e89b-12d3-a456-42665544****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	47B80B6A-759A-479C-A565-76D04BDA29F3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSnatEntry
&RegionId=cn-qingdao-env17-d01
&SnatEntryId=snat-bp1vcgcf8tm0plqc****
&SnatTableId=stb-bp190wu8io1vgev80****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSnatEntryResponse>
  <RequestId>47B80B6A-759A-479C-A565-76D04BDA29F3</RequestId>
</DeleteSnatEntryResponse>
```

`JSON` format

```
{"RequestId":"47B80B6A-759A-479C-A565-76D04BDA29F3"}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	IncorretSnatEntryStatus	Some Snat entry status blocked this operation..	The error message returned because you are not authorized to perform the specified operation. The error message returned because one or more SNAT entries in the SNAT table are in the Pending or Modifying state.
404	InvalidSnatEntryId.NotFound	Specified Snat entry ID does not exist	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
404	InvalidSnatEntryId.NotFound	Specified SNAT entry does not exist.	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.

16.1.2.7.3. ModifySnatEntry

Modifies a specified SNAT entry.

> **Note** You cannot modify SNAT entries if one or more SNAT entries in the SNAT table are in the **Pending** or **Modifying** state.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySnatEntry	The operation that you want to perform. Set the value to **ModifySnatEntry**.
RegionId	String	Yes	cn-qingdao-env17-d0	The ID of the region where the NAT gateway is deployed.

Parameter	Type	Required	Example	Description
SnatEntryId	String	Yes	snat-bp1vcgcf8tm0plqcg****	The ID of the SNAT entry.
SnatTableId	String	Yes	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table to which the SNAT entry belongs.
SnatIp	String	Yes	47.XX.XX.98	The public IP address in the SNAT entry. If multiple IP addresses are specified, separate them with commas (,).
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The description must be 2 to 128 characters in length, and start with a letter. It cannot start with `http://` or `https://` .
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. Only ASCII characters are allowed. It can contain up to 64 ASCII characters.

Response parameters

Parameter	Type	Example	Description
RequestId	String	2315DEB7-5E92-423A-91F7-4C1EC9AD97C3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySnatEntry
&RegionId=cn-qingdao-env17-d0
&SnatEntryId=snat-bp1vcgcf8tm0plqcg****
&SnatTableId=stb-8vbczigrhop8x5u3t****
&SnatIp=47.XX.XX.98
&<Common request parameters>
```

Successful response examples

`XML` format

```
<ModifySnatEntryResponse>
      <RequestId>2315DEB7-5E92-423A-91F7-4C1EC9AD97C3</RequestId>
</ModifySnatEntryResponse>
```

`JSON` format

```
{
  "RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID is invalid. Check whether the service is available in the specified region.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.
400	InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	The error message returned because the specified public IP address is invalid.
404	InvalidSnatEntryId.NotFound	Specified SNAT entry does not exist.	The error message returned because the specified SNAT entry does not exist. Check whether the SNAT entry is valid.
400	Forbidden.SourceVSwitchId.Duplicated	The specified SourceCIDRis duplicated.	The error message returned because an SNAT entry is already configured for the specified vSwitch.
404	InvalidSnatIp.NotFound	Specified SnatIp does not found on the NAT Gateway	The error message returned because the specified public IP address does not exist in the NAT gateway.

HttpCode	Error code	Error message	Description
400	Forbidden.IpUsedInForwardTable	The specified SnatIp already used in forward table	The error message returned because the specified public IP address is already used by a DNAT entry. Select another IP address or delete the DNAT rule that uses the public IP address.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name format is invalid.

16.1.2.7.4. DescribeSnatTableEntries

Queries SNAT entries.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSnatTableEntries	The operation that you want to perform. Set the value to **DescribeSnatTableEntries**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
SnatTableId	String	Yes	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table.
SnatEntryId	String	No	snat-8vbae8uqh7rjpk7d2****	The ID of the SNAT entry.
SourceVSwitchId	String	No	vsw-3xb****	The ID of the vSwitch that can access the Internet through SNAT.
SourceCIDR	String	No	116.XX.XX.0/28	The source CIDR block of the SNAT entry.

Parameter	Type	Required	Example	Description
SnatIp	String	No	116.XX.XX.28	The public IP address in the SNAT entry.
SnatEntryName	String	No	SnatEntry-1	The name of the SNAT entry. The name must be 2 to 128 characters in length, and start with a letter. The name cannot start with `http://` or `https://`.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
SnatTableEntries	Array of SnatTableEntry		The detailed information about the SNAT entries.
SnatTableEntry			
SnatEntryId	String	snat-8vbae8uqh7rjpk7d2****	The ID of the SNAT entry.
SnatEntryName	String	SnatEntry-1	The name of the SNAT entry.
SnatIp	String	116.XX.XX.28	The public IP address in the SNAT entry.
SnatTableId	String	stb-8vbczigrhop8x5u3t****	The ID of the SNAT table to which the SNAT entry belongs.
SourceCIDR	String	116.XX.XX.0/28	The source CIDR block of the SNAT entry.
SourceVSwitchId	String	vsw-3xb****	The ID of the vSwitch that can access the Internet through SNAT.

Parameter	Type	Example	Description
Status	String	Pending	The state of the SNAT entry.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	5	The number of entries returned on each page.
RequestId	String	6D7E89B1-1C5B-412B-8585-4908E222EED5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSnatTableEntries
&RegionId=cn-qingdao-env17-d01
&SnatTableId=stb-8vbczigrhop8x5u3t****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSnatTableEntriesResponse>
  <TotalCount>1</TotalCount>
  <PageSize>5</PageSize>
  <RequestId>6D7E89B1-1C5B-412B-8585-4908E222EED5</RequestId>
  <PageNumber>1</PageNumber>
  <SnatTableEntries>
        <Status>Pending</Status>
        <SourceVSwitchId>vsw-3xb****</SourceVSwitchId>
        <SnatEntryName>SnatEntry-1</SnatEntryName>
        <SourceCIDR>116.XX.XX.0/28</SourceCIDR>
        <SnatEntryId>snat-8vbae8uqh7rjpk7d2****</SnatEntryId>
        <SnatIp>116.XX.XX.28</SnatIp>
        <SnatTableId>stb-8vbczigrhop8x5u3t****</SnatTableId>
  </SnatTableEntries>
</DescribeSnatTableEntriesResponse>
```

`JSON` format

```
{
    "TotalCount": 1,
    "PageSize": 5,
    "RequestId": "6D7E89B1-1C5B-412B-8585-4908E222EED5",
    "PageNumber": 1,
    "SnatTableEntries": {
        "Status": "Pending",
        "SourceVSwitchId": "vsw-3xb****",
        "SnatEntryName": "SnatEntry-1",
        "SourceCIDR": "116.XX.XX.0/28",
        "SnatEntryId": "snat-8vbae8uqh7rjpk7d2****",
        "SnatIp": "116.XX.XX.28",
        "SnatTableId": "stb-8vbczigrhop8x5u3t****"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	The error message returned because the specified SNAT table does not exist. Check whether the ID of the SNAT table is valid.

16.1.2.8. NAT bandwidth packages

16.1.2.8.1. CreateBandwidthPackage

Creates a NAT service plan.

Description

A NAT service plan consists of bandwidth resources and one or more public IP addresses. You can associate up to four NAT service plans with a NAT gateway.

A NAT service plan includes:

- Bandwidth resources
- One or more public IP addresses

> **Note** This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before November 3, 2017. If you have not purchased a NAT service plan before November 3, 2017, you can apply for public IP addresses by associating elastic IP addresses (EIPs).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateBandwidthPackage	The operation that you want to perform. Set the value to **CreateBandwidthPackage**.
Bandwidth	Integer	Yes	5	The maximum bandwidth of the NAT service plan. Valid values: **5** to **1000**. Unit: Mbit/s.
IpCount	Integer	Yes	2	The number of public IP addresses in the NAT service plan. Valid values: **1 to 50**.
NatGatewayId	String	Yes	ngw-7mwb327j1****	The ID of the NAT gateway.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	The name of the NAT service plan.	The name of the NAT service plan. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`.
Description	String	No	The description of the NAT service plan.	The description of the NAT service plan. The name must be 2 to 256 characters in length, and start with a letter. It cannot start with `http://` or `https://`.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
ISP	String	No	BGP	Only **BGP** is supported.
Zone	String	No	cn-qingdao-env17-amtest11001-a	The zone to which the NAT service plan belongs. If you do not set this parameter, the service plan is randomly allocated to a zone. **Note** Connectivity is not affected when the IP addresses provided by the NAT service plan and the backend Elastic Compute Service (ECS) instances belong to different zones. However, when the IP addresses and ECS instances belong to the same zone, latency can be reduced.
InternetChargeType	String	No	PayByBandwidth	The metering method of the NAT service plan. Valid values: • **PayByTraffic**: pay-by-data-transfer • **PayByBandwidth**：按带宽计费。

Response parameters

Parameter	Type	Example	Description
BandwidthPackageId	String	bwp-s6lmotmkk****	The ID of the NAT service plan.
RequestId	String	54ED4074-3F89-4F11-B166-837DD3E20FE3	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateBandwidthPackage
&Bandwidth=5
&IpCount=2
&NatGatewayId=ngw-7mwb327j1****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateBandwidthPackageResponse>
  <RequestId>54ED4074-3F89-4F11-B166-837DD3E20FE3</RequestId>
  <BandwidthPackageId>bwp-s6lmotmkk****</BandwidthPackageId>
</CreateBandwidthPackageResponse>
```

`JSON` format

```
{
    "RequestId": "54ED4074-3F89-4F11-B166-837DD3E20FE3",
    "BandwidthPackageId": "bwp-s6lmotmkk****"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidVpcId.NotFound	Specified value of VpcId is not found in our record.	The error message returned because the specified VPC does not exist. Check whether the specified VPC ID is valid.
400	MissingParameter	Miss mandatory parameter.	The error message returned because one or more required parameters are not set. Check whether you have set all the required parameters before you call this operation.
404	InvalidZoneId.NotFound	Specified value of ZoneId is not exists.	The error message returned because the specified zone does not exist.
404	InvalidZoneId.NotFound	Can not find ZoneId for allocated ip.	The error message returned because the zone of the specified IP address is invalid.
400	QuotaExceeded.BandwidthPackageIps	The specified ipCount exceeded quota.	The error message returned because the number of IP addresses has reached the upper limit. Submit a ticket to increase the quota.

HttpCode	Error code	Error message	Description
400	QuotaExceeded.BandwidthPackageCountOnNatGateway	BandwidthPackage count limit on one NatGateway exceeded.	The error message returned because the number of NAT service plans has reached the upper limit. You can associate up to four NAT service plans with a NAT gateway.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.
400	InvalidParameter.BandwidthPackage.n.ISP.ValueNotSupport	The specified ISP of BandwidthPackage is not valid.	The error message returned because the specified Internet service provider (ISP) of the EIP bandwidth plan is invalid.
400	ZONE_NO_AVAILABLE_IP	The Zone have no available ip.	The error message returned because no IP address is available in the zone.

16.1.2.8.2. ModifyBandwidthPackageSpec

Modifies the bandwidth value of a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBandwidthPackageSpec	The operation that you want to perform. Set the value to **ModifyBandwidthPackageSpec**.
Bandwidth	String	Yes	5	The maximum bandwidth of the NAT service plan. Valid values: **5** to **1000**.
BandwidthPackageId	String	Yes	bwp-s6lmotmkk****	The ID of the NAT service plan.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	079874CD-AEC1-43E6-AC03-ADD96B6E4907	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyBandwidthPackageSpec
&Bandwidth=5
&BandwidthPackageId=bwp-s6lmotmkk****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBandwidthPackageSpecResponse>
  <RequestId>079874CD-AEC1-43E6-AC03-ADD96B6E4907</RequestId>
</ModifyBandwidthPackageSpecResponse>
```

`JSON` format

```
{
    "RequestId": "079874CD-AEC1-43E6-AC03-ADD96B6E4907"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidBandwidth.ValueNotSupported	The specified value of Bandwidth not supported.	The error message returned because the specified maximum bandwidth value is invalid.

HttpCode	Error code	Error message	Description
404	BandwidthPackage.FinancialLocked	The specified BandwidthPackage has been Financail Lock.	The error message returned because the specified NAT service plan is locked due to overdue payments.

16.1.2.8.3. ConvertBandwidthPackage

Converts a NAT service plan to an EIP bandwidth plan.

Description

Before you convert a NAT service plan to an EIP bandwidth plan, take note of the following limits:

- You are not charged for the conversion.
- When you convert a NAT service plan to an EIP bandwidth plan, you can continue to use the SNAT and DNAT features of the NAT gateway, and your workloads are not affected. However, we recommend that you convert your NAT service plan during off-peak hours.
- After the NAT service plan is converted to an EIP bandwidth plan, the public IP addresses in the NAT service plan are converted to elastic IP addresses (EIPs). The maximum bandwidth and billing method of the EIP bandwidth plan are the same as those of the NAT service plan.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ConvertBandwidthPackage	The operation that you want to perform. Set the value to **CreateBandwidthPackage**.
BandwidthPackageId	String	Yes	bwp-bp1xea10o8qxw4f****	The ID of the NAT service plan.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	123e4567-e89b-12d3-a456-426655440000	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. `ClientToken` can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
ConvertInstanceId	String	cbwp-s6lmotmkkf567b****	The ID of the EIP bandwidth plan.
RequestId	String	0C2EE7A8-74D4-4081-8236-CEBDE3BBCF50	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ConvertBandwidthPackage
&BandwidthPackageId=bwp-bp1xea10o8qxw4f****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ConvertBandwidthPackageResponse>
   <RequestId>0C2EE7A8-74D4-4081-8236-CEBDE3BBCF50</RequestId>
   <ConvertInstanceId>cbwp-s6lmotmkkf567b****</ConvertInstanceId>
</ConvertBandwidthPackageResponse>
```

`JSON` format

```
{
    "ConvertBandwidthPackageResponse": {
        "RequestId": "0C2EE7A8-74D4-4081-8236-CEBDE3BBCF50",
        "ConvertInstanceId": "cbwp-s6lmotmkkf567b****"
    }
}
```

16.1.2.8.4. DescribeBandwidthPackages

Queries NAT service plans in a specified region.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeBandwidthPackages	The operation that you want to perform. Set the value to **DescribeBandwidthPackages**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
BandwidthPackageId	String	No	bwp-bp1xea10o8qxwdfs****	The ID of the NAT service plan.
NatGatewayId	String	No	ngw-bp1uewa15k4iydfre****	The ID of the NAT gateway.
PageNumber	Integer	No	10	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
BandwidthPackages	Array of BandwidthPackage		The detailed description of the NAT service plan.
BandwidthPackage			
Bandwidth	String	5	The bandwidth value of the NAT service plan. Valid values: **5** to **5000**. Unit: Mbit/s.
BandwidthPackageId	String	bwp-xxoo123sfwr****	The ID of the NAT service plan.

Parameter	Type	Example	Description
BusinessStatus	String	Normal	The state of the NAT service plan. Valid values: • **Normal**: The NAT service plan working as expected. • **FinancialLocked**: The NAT service plan is locked due to overdue payments. • **SecurityLocked**: The NAT service plan is locked due to security reasons.
CreationTime	String	2017-06-08T12:20:55	The time when the NAT service plan was created. The time follows the ISO 8601 standard in YYYY-MM-DDThh:mmZ format. It must be in UTC.
Description	String	test123	The description of the NAT service plan. The description must be 2 to 256 characters in length. The description is displayed in the console. This parameter is empty by default. It cannot start with `http://` or `https://`.
ISP	String	BGP	Only **BGP** is supported.
InstanceChargeType	String	PostPaid	The billing method of the NAT service plan. Only **PostPaid** (pay-as-you-go) is supported.
InternetChargeType	String	PayByBandwidth	The metering method of the NAT service plan. • **PayByTraffic**: pay-by-data-transfer • **PayByBandwidth**: 按带宽计费。
IpCount	String	1	The number of public IP addresses in the NAT service plan. Valid values: **1** to **50**.
Name	String	abc	The name of the NAT service plan.
NatGatewayId	String	ngw-xxoo123ggtf****	The ID of the NAT gateway.

Parameter	Type	Example	Description
PublicIpAddresses	Array of PublicIpAddress		The IP address in the NAT service plan.
PublicIpAddress			
AllocationId	String	eip-2zeerraiwb7ujdeds****	The ID that is allocated.
ApAccessEnabled	Boolean	true	
IpAddress	String	116.XX.XX.28	The IP address.
UsingStatus	String	Available	The state of the NAT service plan.
RegionId	String	cn-qingdao-env17-d01	The region ID of the NAT service plan.
Status	String	Available	The state of the bandwidth plan.
ZoneId	String	cn-qingdao-env17-amtest11001-a	The ID of the zone to which the NAT service plan belongs.
TotalCount	Integer	10	The number of entries returned.
PageNumber	Integer	10	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF"	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeBandwidthPackages
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeBandwidthPackagesResponse>
  <TotalCount>10</TotalCount>
  <PageSize>10</PageSize>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF"</RequestId>
  <PageNumber>10</PageNumber>
  <BandwidthPackages>
        <Status>Available</Status>
        <IpCount>1</IpCount>
        <Description>test123</Description>
        <ZoneId>cn-qingdao-env17-amtest11001-a</ZoneId>
        <InstanceChargeType>PostPaid</InstanceChargeType>
        <ISP>BGP</ISP>
        <BusinessStatus>Normal</BusinessStatus>
        <InternetChargeType>PayByBandwidth</InternetChargeType>
        <Name>abc</Name>
        <Bandwidth>5</Bandwidth>
        <CreationTime>2017-06-08T12:20:55</CreationTime>
        <BandwidthPackageId>bwp-xxoo123sfwr****</BandwidthPackageId>
        <RegionId>cn-qingdao-env17-d01</RegionId>
        <NatGatewayId> ngw-xxoo123ggtf****</NatGatewayId>
        <PublicIpAddresses>
              <UsingStatus>Available</UsingStatus>
              <ApAccessEnabled>true</ApAccessEnabled>
              <AllocationId>eip-2zeerraiwb7ujdeds****</AllocationId>
              <IpAddress>116.XX.XX.28</IpAddress>
        </PublicIpAddresses>
  </BandwidthPackages>
</DescribeBandwidthPackagesResponse>
```

`JSON` format

```
{
    "TotalCount": 10,
    "PageSize": 10,
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF\"",
    "PageNumber": 10,
    "BandwidthPackages": {
        "Status": "Available",
        "IpCount": 1,
        "Description": "test123",
        "ZoneId": "cn-qingdao-env17-amtest11001-a",
        "InstanceChargeType": "PostPaid",
        "ISP": "BGP",
        "BusinessStatus": "Normal",
        "InternetChargeType": "PayByBandwidth",
        "Name": "abc",
        "Bandwidth": 5,
        "CreationTime": "2017-06-08T12:20:55",
        "BandwidthPackageId": "bwp-xxoo123sfwr****",
        "RegionId": "cn-qingdao-env17-d01",
        "NatGatewayId": "ngw-xxoo123ggtf****",
        "PublicIpAddresses": {
            "UsingStatus": "Available",
            "ApAccessEnabled": true,
            "AllocationId": "eip-2zeerraiwb7ujdeds****",
            "IpAddress": "116.XX.XX.28"
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.

16.1.2.8.5. ModifyBandwidthPackageAttribute

Modifies the name and description of a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyBandwidthPackageAttribute	The operation that you want to perform. Set the value to **ModifyBandwidthPackageAttribute**.
BandwidthPackageId	String	Yes	bwp-s6lmotmkk****	The ID of the NAT service plan.
RegionId	String	Yes	cn-qingdao-env17-d01	The region ID of the NAT service plan. You can call the `DescribeRegions` operation to query the most recent region list.
Name	String	No	NATABC	The name of the NAT service plan. The name must be 2 to 128 characters in length and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name cannot start with `http://` or `https://`.
Description	String	No	This is NAT.	The description of the NAT service plan. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	DFDDD35D-3F29-4E15-AA28-53F5341F9599	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyBandwidthPackageAttribute
&BandwidthPackageId=bwp-s6lmotmkk****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyBandwidthPackageAttributeResponse>
  <RequestId>DFDDD35D-3F29-4E15-AA28-53F5341F9599</RequestId>
</ModifyBandwidthPackageAttributeResponse>
```

`JSON` format

```
{
    "RequestId": "DFDDD35D-3F29-4E15-AA28-53F5341F9599"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
404	InvalidBandwidthPackageId.NotFound	The specified bandwidthPackageId does not exist in our records.	The error message returned because the ID of the specified NAT service plan does not exist.
400	InvalidParameter.Name.Malformed	The specified Name is not valid.	The error message returned because the specified name is invalid.
400	InvalidParameter.Description.Malformed	The specified Description is not valid.	The error message returned because the specified description is invalid.

16.1.2.8.6. DeleteBandwidthPackage

Deletes a specified NAT service plan.

This operation can be performed by only Apsara Stack accounts that have purchased NAT service plans before January 26, 2018. If you have not purchased a NAT service plan before January 26, 2018, associate elastic IP addresses (EIPs) with your NAT gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteBandwidthPackage	The operation that you want to perform. Set the value to **DeleteBandwidthPackage**.
BandwidthPackageId	String	Yes	bwp-bp1arsrmca9kp****	The ID of the NAT service plan.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where the NAT gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
Force	Boolean	No	false	Specifies whether to forcibly delete the NAT service plan. • **false**(default): no • **true**: yes

Response parameters

Parameter	Type	Example	Description
RequestId	String	7D275A59-1EB0-4775-8A20-2A47055EAC5C	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteBandwidthPackage
&BandwidthPackageId=bwp-bp1arsrmca9kp****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteBandwidthPackageResponse>
  <RequestId>7D275A59-1EB0-4775-8A20-2A47055EAC5C</RequestId>
</DeleteBandwidthPackageResponse>
```

`JSON` format

```
{
    "RequestId": "7D275A59-1EB0-4775-8A20-2A47055EAC5C"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	The error message returned because the specified region ID does not exist.
400	DependencyViolation.ForwardEntry	The specified BandwidthPackageId has dependent resource.	The error message returned because the NAT service plan contains SNAT or DNAT entries. Delete them and try again.
400	DependencyViolation.SnatEntry	The specified BandwidthPackageId has dependent resource.	The error message returned because the NAT service plan contains SNAT or DNAT entries. Delete them and try again.

16.1.2.8.7. RemoveBandwidthPackageIps

Removes public IP addresses from a NAT service plan.

Description

When you call this operation, take note of the following:

- You cannot remove all public IP addresses from a NAT service plan.
- You cannot remove an IP address that is not included in the specified NAT service plan.
- You cannot remove an IP address that is listed in the DNAT table or the SNAT table.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	RemoveBandwidthPackageIps	The operation that you want to perform. Set the value to *RemoveBandwidthPackageIps*.
RegionId	String	Yes	cn-hangzhou	The region ID of the NAT service plan. You can call the DescribeRegions operation to query the most recent region list.
BandwidthPackageId	String	Yes	bwp-s6lmotmkkza1w****	The ID of the NAT bandwidth package.
RemovedIpAddresses.n	String	No	nateip-1110a2l1ad2****	The ID of public IP address n to be removed. n must start from 1 and cannot exceed 20.

Response parameters

Parameter	Type	Example	Description
RequestId	String	7D275A59-1EB0-4775-8A20-2A47055EAC5C	The ID of the request.

Examples

Sample requests

```
https://vpc.example.com/?Action=RemoveBandwidthPackageIps
&RemovedIpAddresses.1=nateip-1110a2l1ad2****
&BandwidthPackageId=bwp-s6lmotmkkza1w****
&amp;RegionId=cn-hangzhou
&<Common request parameters>
```

Sample responses

- XML format

```
<? xml version="1.0" encoding="UTF-8" ? >
<RemoveBandwidthPackageIpsResponse>
       <RequestId>2315DEB7-5E92-423A-91F7-4C1EC9AD97C3</RequestId>
</RemoveBandwidthPackageIpsResponse>
```

- JSON format

```
{
     "RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
 }
```

17.VPN Gateway

17.1. Developer Guide

17.1.1. List of operations by function

The following tables list the API operations that are available for use in VPN Gateway.

VPN gateway management

API	Description
CreateVpnGateway	Creates a VPN gateway.
ModifyVpnGatewayAttribute	Modifies the name and description of a VPN gateway.
DescribeVpnGateways	Queries VPN gateways.
DescribeVpnGateway	Queries the details about a VPN gateway.
DeleteVpnGateway	Deletes a VPN gateway.

Customer gateway

API	Description
CreateCustomerGateway	Creates a customer gateway.
ModifyCustomerGatewayAttribute	Modifies the name and description of a customer gateway.
DescribeCustomerGateways	Queries customer gateways.
DescribeCustomerGateway	Queries the details about a customer gateway.
DeleteCustomerGateway	Deletes a customer gateway.

Routes for VPN gateways

API	Description
CreateVpnRouteEntry	Creates a destination-based route entry for a VPN gateway.
CreateVpnPbrRouteEntry	Creates a policy-based route entry for a VPN gateway.
PublishVpnRouteEntry	Publishes a route entry of a VPN gateway to the route table of the associated VPC network.

API	Description
DescribeVpnRouteEntries	Queries destination-based route entries of a VPN gateway.
DescribeVpnPbrRouteEntries	Queries policy-based route entries of a VPN gateway.
ModifyVpnRouteEntryWeight	Modifies the weight of a destination-based route entry for a VPN gateway.
ModifyVpnPbrRouteEntryWeight	Modifies the weight of a policy-based route entry for a VPN gateway.
DeleteVpnRouteEntry	Deletes a destination-based route entry of a VPN gateway.
DeleteVpnPbrRouteEntry	Deletes a policy-based route entry of a VPN gateway.

IPsec-VPN

API	Description
CreateVpnConnection	Creates an IPsec-VPN connection.
ModifyVpnConnectionAttribute	Modifies the configuration of an IPsec-VPN connection.
DescribeVpnConnections	Queries IPsec-VPN connections.
DescribeVpnConnection	Queries the details about an IPsec-VPN connection.
DownloadVpnConnectionConfig	Downloads the configuration of an IPsec-VPN connection.
DeleteVpnConnection	Deletes an IPsec-VPN connection.

SSL-VPN

API	Description
CreateSslVpnServer	Creates an SSL-VPN server.
ModifySslVpnServer	Modifies the configuration of an SSL-VPN server.
DescribeSslVpnServers	Queries SSL-VPN servers.
DescribeVpnSslServerLogs	Queries the logs of an SSL-VPN server.
DeleteSslVpnServer	Deletes an SSL-VPN server.
CreateSslVpnClientCert	Creates an SSL-VPN client certificate.

API	Description
ModifySslVpnClientCert	Modifies the name of an SSL-VPN client certificate.
DescribeSslVpnClientCerts	Queries SSL-VPN client certificates.
DescribeSslVpnClientCert	Queries the details about an SSL-VPN client certificate.
DeleteSslVpnClientCert	Deletes an SSL-VPN client certificate.

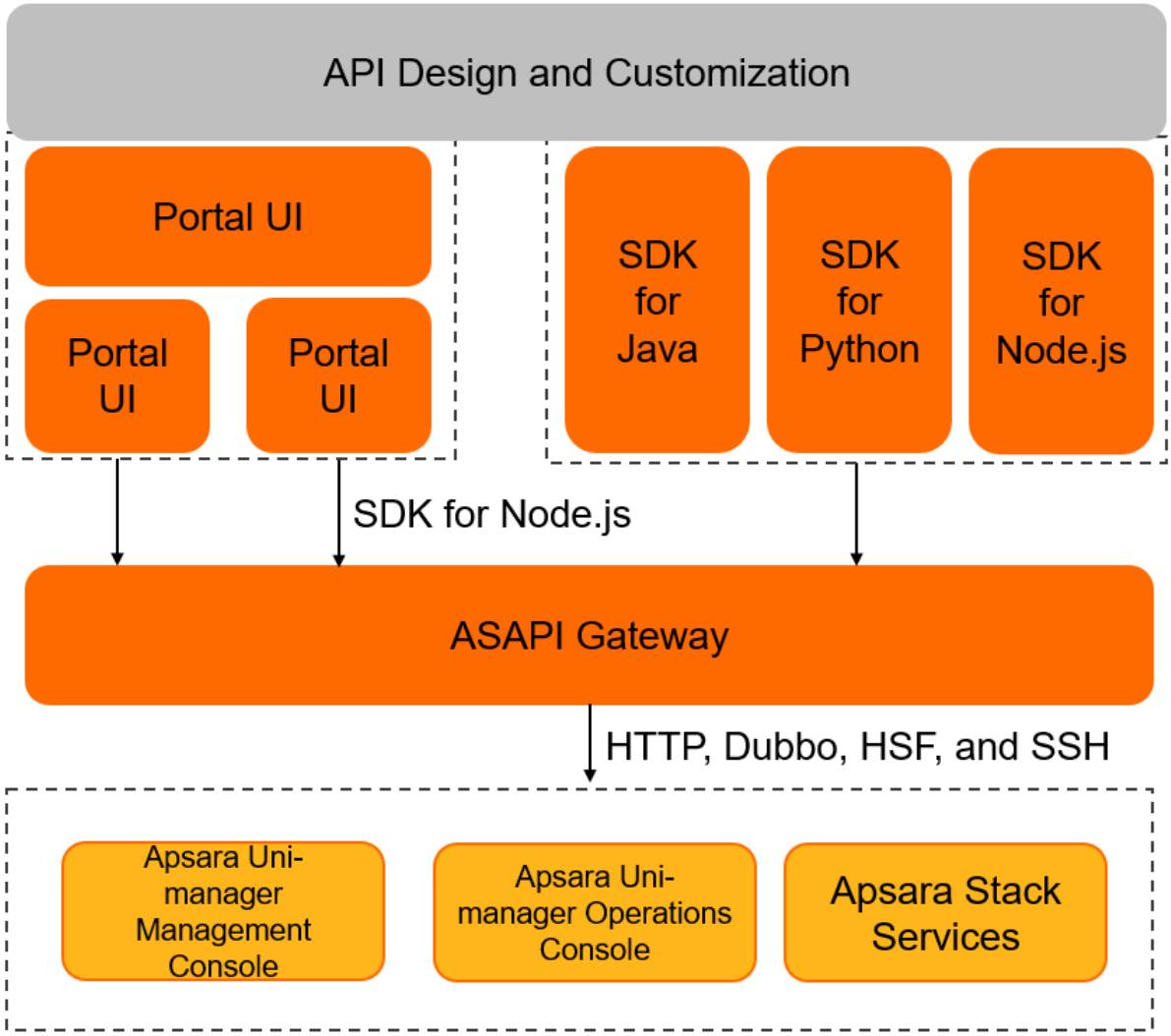
17.1.2. Call VPC SDK by using ASAPI

17.1.2.1. 文档标题缺失，请补全后重新导出

17.1.2.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

17.1.2.1.2. Preparations

17.1.2.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

17.1.2.1.2.2. View information about API operations

This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

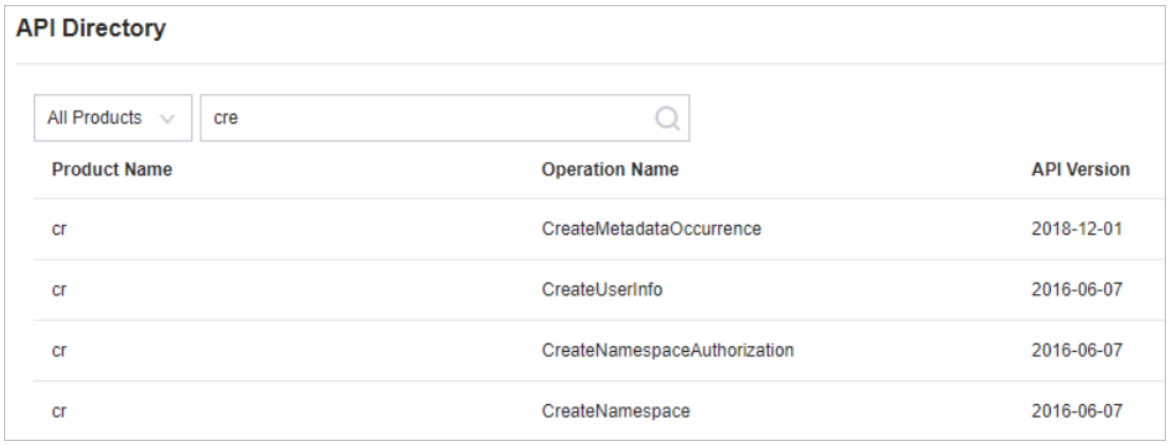
Context

The API operations on the API Directory page are only for reference. For information about how to call

API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



4. Then, you can view the service name, API operation name, and API operation version.

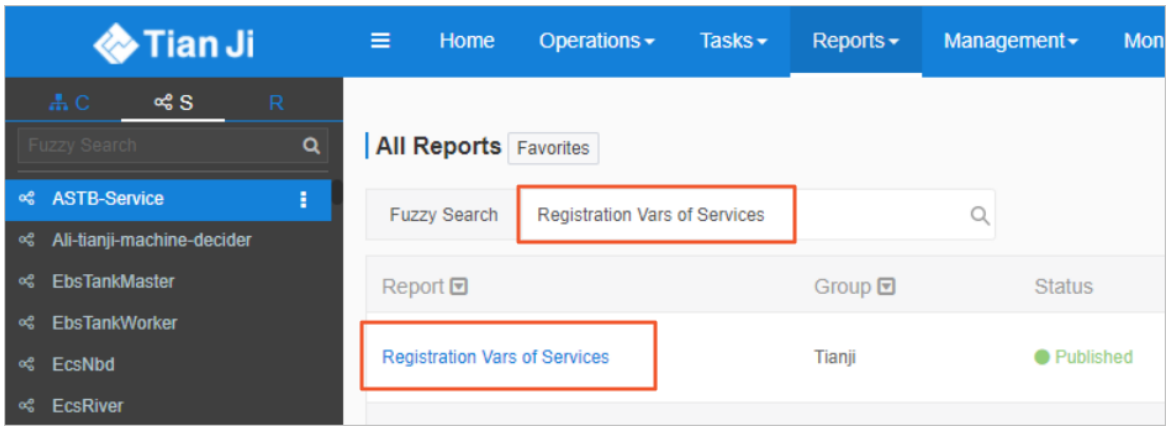
17.1.2.1.2.3. Generate an endpoint for the ASAPI

This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

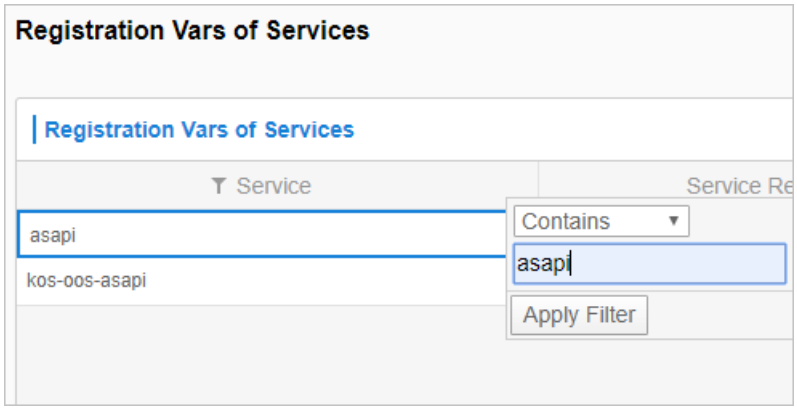
Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.

3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.
   i. In the left-side navigation pane, choose Operations > Cluster Operations.
   ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.
   i. Click the Cluster Resources tab.
   ii. In the **Name** field, search for `asapi_dns_public`.
   iii. Click **Details** in the **Application Parameter** column.
   In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

17.1.2.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

17.1.2.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

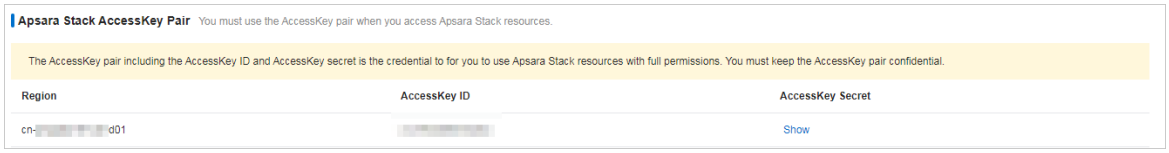
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

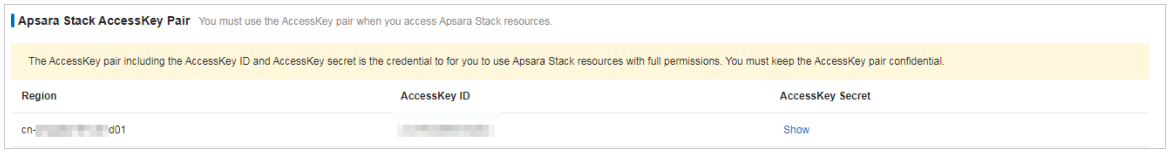
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

17.1.2.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



17.1.2.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

. .

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.

Parameter	Type	Required	Description
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

17.1.2.1.4. SDK description

17.1.2.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an

AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.

- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

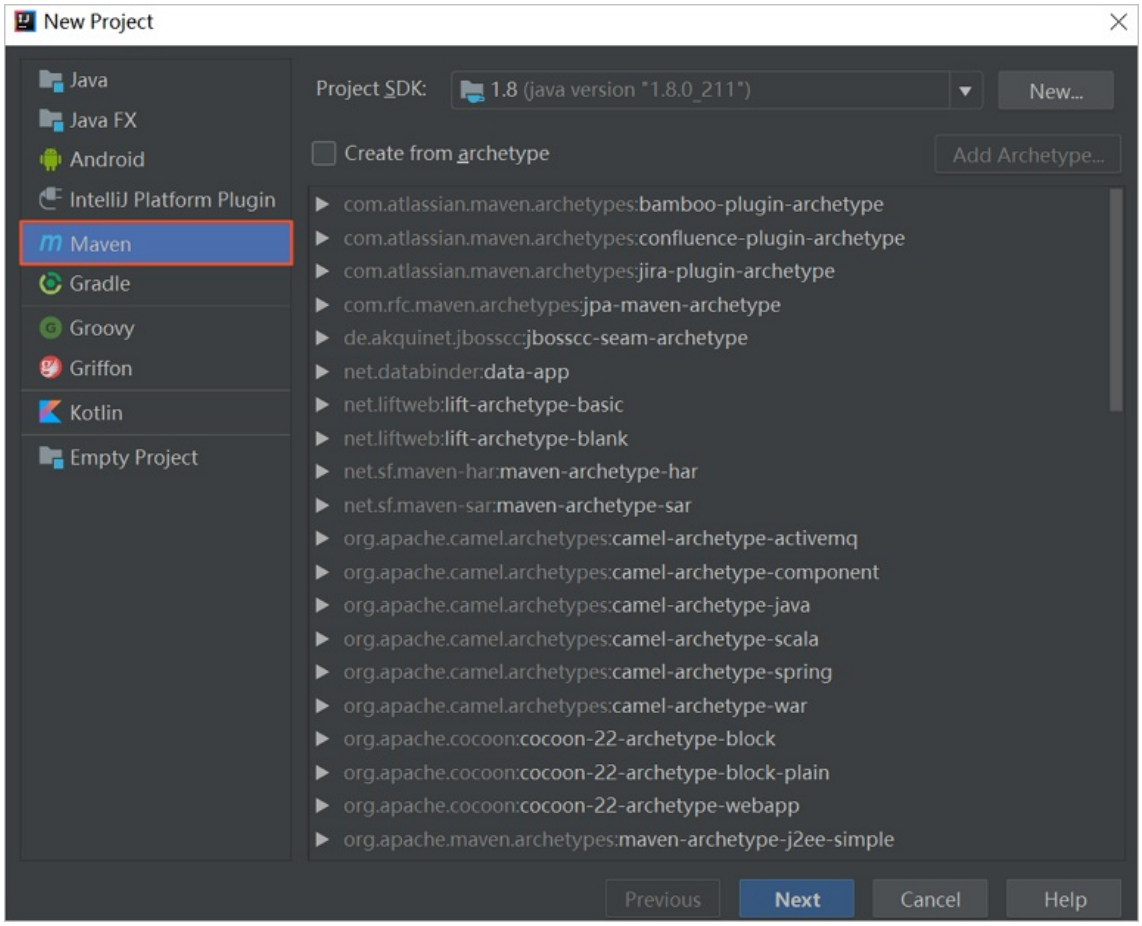
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

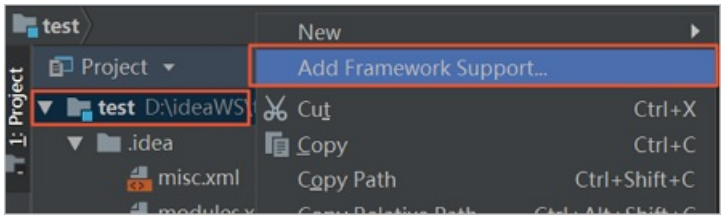
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

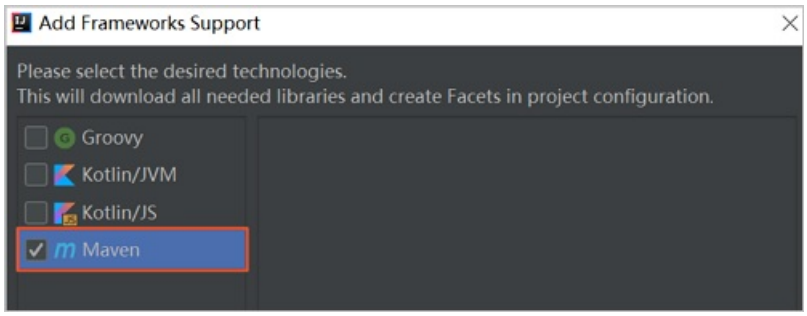
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



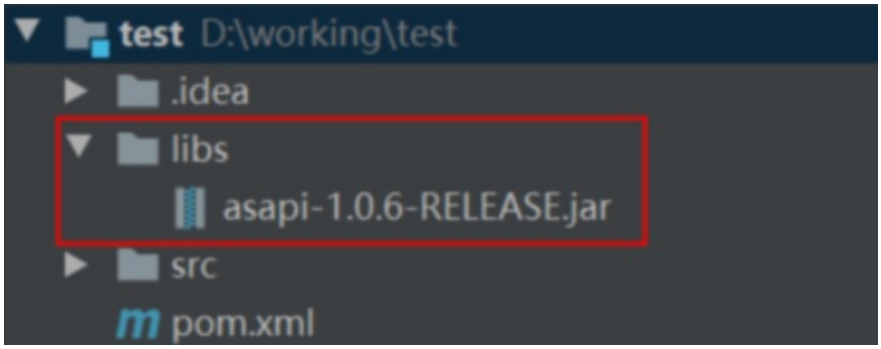
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



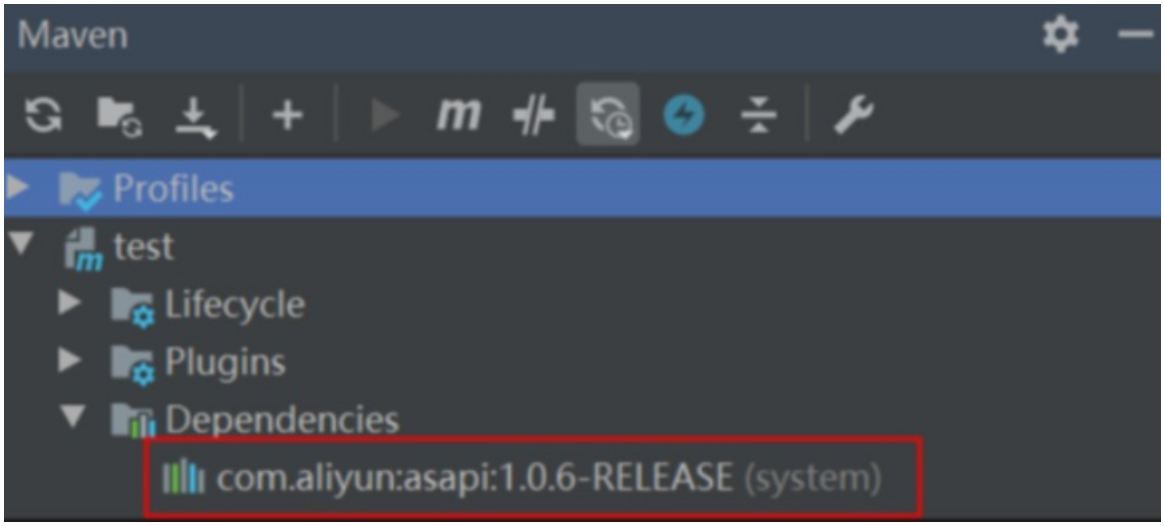
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

Note Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

   If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

17.1.2.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

17.1.2.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

17.1.2.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

17.1.2.1.5. HTTP requests

17.1.2.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

17.1.2.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

17.1.2.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

  ```
  private static final String ENCODING = "UTF-8";
  private static String percentEncode(String value) throws UnsupportedEncodingException
  {
      return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
  lace("*", "%2A").replace("%7E", "~") : null;
  }
  ```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

   ```
   StringToSign=
       HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
   ch as GET.
       percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
   F-8 as %2F.
       percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
   eated in Step 1.
   ```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

   ```
   String signature = Base64.getEncoder().encodeToString(signData);
   ```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

17.1.2.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

17.1.3. Make API requests

17.1.3.1. Request syntax

To call a VPN Gateway API operation, you must send an HTTP GET request to the endpoint of the VPN Gateway API. Before you send a request, you must specify the request parameters for the operation. A response is returned for each request. Requests and responses are encoded by using UTF-8.

VPN Gateway API operations use the RPC protocol. You can call VPN Gateway API operations by sending HTTP GET requests.

The requests use the following syntax:

```
http://Endpoint/?Action=xx&Parameters
```

where:

- Endpoint: the endpoint of the API. The endpoint of the VPN Gateway API is `vpc.example.com`.

  > **Note** `example.com` is a custom domain name. You can obtain the endpoint in the Apsara Uni-manager Operations Console. For more information, see Generate the ASAPI endpoint.

- Action: the operation that you want to perform. For example, you can call DescribeVpnGateways to query VPN gateways.
- Version: the version of the API that you want to call. The current version of the VPN Gateway API is *2016-04-28*.
- Parameters: the request parameters for the operation. Separate multiple parameters with ampersands (&).

  Request parameters include common parameters and operation-specific parameters. Common parameters include the API version and authentication information. For more information about common parameters, see Common parameters.

The following example shows how to call the DescribeVpnGateways operation to query VPN gateways.

> **Note** The sample requests are formatted to improve readability.

```
https://vpc.example.com/?Action=DescribeVpnGateways
&Format=xml
&Version=2016-04-28
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

17.1.3.2. API authorization

To ensure the security of your account, we recommend that you call API operations as a Resource Access Management (RAM) user. Before you call the VPN Gateway API as a RAM user, you must create a RAM user and grant the RAM user the required permissions.

For more information about VPN resources and API operations that you can authorize a RAM user to use, see RAM authentication.

17.1.3.3. Request signatures

You must sign all API requests to ensure security. Alibaba Cloud uses the request signature to verify the identity of the API caller.

VPN Gateway implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Alibaba Cloud accounts and RAM users that is similar to a pair of username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret confidential. For more information about how to create an AccessKey pair, see Obtain an AccessKey pair.

You must add the signature to an RPC API request in the following format:

```
https://endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=xxxx%xxxx%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
```

For example, you want to call the DescribeVpcs operation. The AccessKey ID is `testid` and the AccessKey secret is `testsecret`. The following code block shows the URL of the request before the request is signed

```
http://vpc.example.com/?Action=DescribeVpnGateways
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Perform the following operations to calculate the signature:

1. Use the request parameters to compose a string-to-sign.

   ```
   GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeVpnGateways&Format%3DXML&SignatureMethod%3DHMAC-SHA1&SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&SignatureVersion%3D1.0&TimeStamp%3D2016-02-23T12%253A46%253A24Z&Version%3D2016-04-28
   ```

2. Calculate the HMAC value of the string-to-sign.

   Append an ampersand (&) to the end of the AccessKey secret as the key to calculate the HMAC value. In this example, the key is `testsecret&`.

   ```
   CT9X0VtwR86fNWSnsc6v8YGOjuE=
   ```

3. Add the signature string to the request as the Signature parameter.

   ```
   http://vpc.example.com/?Action=DescribeVpnGateways
   &Timestamp=2016-02-23T12:46:24Z
   &Format=XML
   &AccessKeyId=testid
   &SignatureMethod=HMAC-SHA1
   &SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
   &Version=2016-04-28
   &SignatureVersion=1.0
   &Signature=xxxx%xxxx%3D
   ```

17.1.3.4. RAM authentication

Before you call the VPN Gateway API as a RAM user, you must use an Apsara Stack tenant account to create a permission policy to assign permissions to the RAM user. In the permission policy, you must use an Alibaba Cloud Resource Name (ARN) to specify the resource that you want this RAM user to access.

Resources types of VPN Gateway that can be authorized

The following table lists the VPN Gateway resources that can be authorized and the ARNs of these resources.

Resource type	ARN
VPN gateway	`acs:vpc:$regionid:$accountid:vpngateway/$vpngatewayid`
	`acs:vpc:$regionid:$accountid:vpngateway/*`
	`acs:vpc:*:$accountid:vpngateway/*`
Customer gateway	`acs:vpc:$regionid:$accountid:customergateway/$customergatewayid`
	`acs:vpc:$regionid:$accountid:customergateway/*`
	`acs:vpc:*:$accountid:customergateway/*`
IPsec-VPN connection	`acs:vpc:$regionid:$accountid:vpnconnection/$vpnconnectionid`
	`acs:vpc:$regionid:$accountid:vpnconnection/*`
	`acs:vpc:*:$accountid:vpnconnection/*`
SSL-VPN server	`acs:vpc:$regionid:$accountid:sslvpnserver/$sslvpnserverid`
	`acs:vpc:$regionid:$accountid:sslvpnserver/*`
	`acs:vpc:*:$accountid:sslvpnserver/*`
SSL-VPN client certificate	`acs:vpc:$regionid:$accountid:sslvpnclientcert/$sslvpnclientcertid`
	`acs:vpc:$regionid:$accountid:sslvpnclientcert/*`
	`acs:vpc:*:$accountid:sslvpnclientcert/*`
General-purpose resource	`acs:vpc:$regionid:$accountid:*`
	`acs:vpc:*:$accountid:*`

`$regionid/accoutid/vrouterid` are the IDs of specific resources. `*` represents all resources.

VPN Gateway API operations that can be authorized

The following table lists the VPN Gateway API operations that can be authorized and the ARNs of these API operations.

API	ARN
ModifyVpnGatewayAttribute	acs:vpc:$regionid:$accountid:vpngateway/$vpngatewayid
DescribeVpnGateways	acs:vpc:$regionid:$accountid:vpngateway/*
DescribeVpnGateway	acs:vpc:$regionid:$accountid:vpngateway/$vpngatewayid
DeleteVpnGateway	acs:vpc:$regionid:$accountid:vpngateway/$vpngatewayid
CreateCustomerGateway	acs:vpc:$regionid:$accountid:customergateway/*
DeleteCustomerGateway	acs:vpc:$regionid:$accountid:customergateway/$customergatewayid
DescribeCustomerGateway	acs:vpc:$regionid:$accountid:customergateway/$customergatewayid
DescribeCustomerGateways	acs:vpc:$regionid:$accountid:customergateway/*
ModifyCustomerGatewayAttribute	acs:vpc:$regionid:$accountid:customergateway/$customergatewayid
CreateVpnConnection	acs:vpc:$regionid:$accountid:vpnconnection/*
DeleteVpnConnection	acs:vpc:$regionid:$accountid:vpnconnection/$vpnconnectionid
DescribeVpnConnection	acs:vpc:$regionid:$accountid:vpnconnection/$vpnconnectionid
DescribeVpnConnections	acs:vpc:$regionid:$accountid:vpnconnection/*
ModifyVpnConnectionAttribute	acs:vpc:$regionid:$accountid:vpnconnection/$vpnconnectionid
DownloadVpnConnectionConfig	acs:vpc:$regionid:$accountid:vpnconnection/$vpnconnectionid

17.1.3.5. Common parameters

Common request parameters

Common request parameters are required by all API operations.

Common request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Format	String	No	The format in which the response is returned. Valid values: *JSON and XML. Default value: JSON.*
Version	String	Yes	The version number of the API, which is in the `YYYY-MM-DD` format. Valid values: *2016-04-28*.
AccessKeyId	String	Yes	The AccessKey ID provided to you by Alibaba Cloud
Signature	String	Yes	The signature string in the API request.
SignatureMethod	String	Yes	The encryption method of the signature string. Valid value: *HMAC-SHA1*.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC. For example, 2013-01-10T12:00:00Z indicates 20:00:00 on January 10, 2013 (UTC+8).
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid value: *1.0*.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different random numbers for different requests.

Common response parameters

API responses use the HTTP response format where a 2XX status code indicates a successful call and a 4XX or 5XX status code indicates a failed call. Responses can be returned in either the JSON or XML format. You can specify the response format in the request. The default response format is JSON.

Every response returns a unique RequestId regardless of whether the call is successful.

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
    <!—Result Root Node-->
    <Interface Name+Response>
        <!—Return Request Tag-->
        <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
        <!—Return Result Data-->
    </Interface Name+Response>
```

- JSON format

```
{
    "RequestId":"4C467B38-3910-447D-87BC-AC049166F216",
    /*Return Result Data*/
    }
```

17.1.4. VPN gateway

17.1.4.1. CreateVpnGateway

Creates a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnGateway	The operation that you want to perform. Set the value to: **CreateVpnGateway**.
Bandwidth	Integer	Yes	5	The public bandwidth of the VPN gateway. Unit: Mbit/s. Valid values: **5, 10, 20, 50, and 100**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the VPN gateway. You can call the DescribeRegions operation to query the most recent region list.
VpcId	String	Yes	vpc-bp1ub1yt9cvakoelj****	The ID of the virtual private cloud (VPC) where the VPN gateway is deployed.
EnableIpsec	Boolean	No	true	Specifies whether to enable the IPsec-VPN feature. Valid values: • **true**: enables the IPsec-VPN feature. • **false**: disables the IPsec-VPN feature. This is the default value.
EnableSsl	Boolean	No	true	Specifies whether to enable the SSL-VPN feature. Valid values: • **true**: enables the SSL-VPN feature. • **false**: disables the SSL-VPN feature. This is the default value.

Parameter	Type	Required	Example	Description
Name	String	No	MYVPN	The name of the VPN gateway. The default value is the ID of the VPN gateway. The name must be 2 to 128 characters in length, and can contain letters, digits, underscores (_), and hyphens (-). The name must start with a letter, and cannot start with `http://` or `https://`.
SslConnections	Integer	No	5	The maximum number of concurrent connections. Valid values: **5**, **10**, and **20**.
VSwitchId	String	No	vsw-bp1j5miw2bae9s2vt****	The ID of the vSwitch to which the VPN gateway belongs.

Response parameters

Parameter	Type	Example	Description
Name	String	myVpn	The name of the VPN gateway.
RequestId	String	54B48E3D-DF70-471B-AA93-08E683A1B457	The ID of the request.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Examples

Sample requests

```
http(s)://vpc.example.com/?Action=CreateVpnGateway &Bandwidth=5 &RegionId=cn-qingdao-env66-d01 &VpcId=vpc-bp1ub1yt9cvakoelj**** &
```

Sample success responses

`XML` format

```
<CreateVpnGatewayResponse>
      <Name>myVpn</Name>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <RequestId>54B48E3D-DF70-471B-AA93-08E683A1B457</RequestId>
</CreateVpnGatewayResponse>
```

`JSON` format

```
{ "CreateVpnGatewayResponse":{ "Name":"myVpn", "VpnGatewayId":"vpn-bp1q8bgx4xnkm2ogj****",
"RequestId":"54B48E3D-DF70-471B-AA93-08E683A1B457" } }
```

17.1.4.2. ModifyVpnGatewayAttribute

Modifies the name and description of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnGatewayAttribute	The operation that you want to perform. Set the value to **ModifyVpnGatewayAttribute**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the DescribeRegions operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.
Description	String	No	vpngateway	The description of the VPN gateway. The description must be 2 to 256 characters in length. It must start with a letter and cannot start with `http://` or `https://`.

Parameter	Type	Required	Example	Description
Name	String	No	myvpn	The name of the VPN gateway. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoel*****	The ID of the virtual private cloud (VPC) to which the VPN gateway belongs.
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv*****	The ID of the vSwitch to which the VPN gateway belongs.
InternetIp	String	116.XX.XX.69	The public IP address of the VPN gateway.
CreateTime	Long	1492753580000	The timestamp generated when the VPN gateway was created.
EndTime	Long	1495382400000	The timestamp to be generated when the VPN gateway expires.
Spec	String	5 Mbps	The specification of the VPN gateway.
Name	String	test	The name of the VPN gateway.
Description	String	test	The description of the VPN gateway.
Status	String	active	The status of the VPN gateway.
IntranetIp	String	172.XX.XX.104	The private IP address of the VPN gateway.

Parameter	Type	Example	Description
RequestId	String	54B48E3D-DF70-471B-AA93-08E683A1B457	The ID of the request.

Examples

Sample requests

```
https://vpc.example.com/?Action=ModifyVpnGatewayAttribute
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<公共请求参数>
```

Sample success responses

`XML` format

```
<ModifyVpnGatewayAttributeResponse>
      <Name>aaa</Name>
      <Status>active</Status>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <Spec>5M</Spec>
      <CreateTime>1492753580000</CreateTime>
      <IntranetIp>172.XX.XX.104</IntranetIp>
      <RequestId>54B48E3D-DF70-471B-AA93-08E683A1B457</RequestId>
      <InternetIp>116.XX.XX.69</InternetIp>
      <EndTime>1495382400000</EndTime>
      <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
      <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
</ModifyVpnGatewayAttributeResponse>
```

`JSON` format

```
{
 "Name":"aaa",
 "Status":"active",
 "VpnGatewayId":"vpn-bp1q8bgx4xnkm2ogj****",
 "Spec":"5M",
 "RequestId":"BA56EAF8-E3A9-4BE6-8511-8F03512153E2",
 "IntranetIp":"172.XX.XX.104",
 "CreateTime":1492753580000,
 "InternetIp":"116.XX.XX.69",
 "EndTime":1495382400000,
 "VSwitchId":"vsw-bp1y9ovl1cu9ou4tv****",
 "VpcId":"vpc-bp1ub1yt9cvakoelj****"
}
```

17.1.4.3. DescribeVpnGateways

Queries one or more VPN gateways.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnGateways	The operation that you want to perform. Set the value to **DescribeVpnGateways**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpcId	String	No	vpc-bp1ub1yt9cvakoelj****	The ID of the virtual private cloud (VPC) to which the VPN gateway belongs.
VpnGatewayId	String	No	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Status	String	No	init	The status of the VPN gateway. Valid values: • **init**: The VPN gateway is being initialized. • **provisioning**: The VPN gateway is being prepared. • **active**: The VPN gateway is running as expected. • **updating**: The VPN gateway is being updated. • **Deleting**: The VPN gateway is being deleted.
BusinessStatus	String	No	Normal	The payment status of the VPN gateway. Valid values: • **Normal**: The VPN gateway is running as expected. • **FinancialLocked**: The VPN gateway is locked due to overdue payments.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
VpnGateways	Array of VpnGateway		Detailed information about the VPN gateways.
VpnGateway			
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoelj*****	The ID of the VPC to which the VPN gateway belongs.
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv*****	The ID of the vSwitch to which the VPN gateway is attached.
InternetIp	String	116.XX.XX.69	The public IP address of the VPN gateway.
CreateTime	Long	1515383700000	The timestamp generated when the VPN gateway was created.
EndTime	Long	1518105600000	The timestamp to be generated when the VPN gateway expires.
Spec	String	5 Mbps	The maximum bandwidth of the VPN gateway. Unit: Mbit/s.
Name	String	test	The name of the VPN gateway.
Description	String	test	The description of the VPN gateway.
Status	String	active	The status of the VPN gateway.

Parameter	Type	Example	Description
BusinessStatus	String	Normal	The payment status of the VPN gateway.
ChargeType	String	Prepay	The billing type. Valid value: **PostpayByFlow**.
IpsecVpn	String	enable	Indicates whether the IPsec-VPN feature is enabled. • **enable**: IPsec-VPN is enabled. • **disable** : IPsec-VPN is disabled.
SslMaxConnections	Long	5	The maximum number of concurrent SSL-VPN connections.
SslVpn	String	enable	Indicates whether the SSL-VPN feature is enabled. • **enable**: SSL-VPN is enabled. • **disable** : SSL-VPN is disabled.
Tag	String	1	The tag of the VPN gateway.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on the current page.
RequestId	String	DF11D6F6-E35A-41C3-9B20-6FC8A901FE65	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnGateways
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnGatewaysResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <VpnGateways>
            <VpnGateway>
                  <Status>active</Status>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <BusinessStatus>Normal</BusinessStatus>
                  <Spec>5M</Spec>
                  <CreateTime>1492753580000</CreateTime>
                  <InternetIp>116.XX.XX.69</InternetIp>
                  <EndTime>1495382400000</EndTime>
                  <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
                  <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
            </VpnGateway>
      </VpnGateways>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeVpnGatewaysResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "VpnGateways": {
        "VpnGateway": [
            {
                "Status": "active",
                "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
                "BusinessStatus": "Normal",
                "Spec": "5M",
                "CreateTime": 1492753580000,
                "InternetIp": "116.XX.XX.69",
                "EndTime": 1495382400000,
                "VSwitchId": "vsw-bp1y9ovl1cu9ou4tv****",
                "VpcId": "vpc-bp1ub1yt9cvakoelj****"
            }
        ]
    },
    "PageSize": 10,
    "RequestId": "B2CD1315-CA2B-47B1-9DA5-8F1D69C48E82"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.4.4. DescribeVpnGateway

Queries the details of a specified VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnGateway	The operation that you want to perform. Set the value to **DescribeVpnGateway**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Response parameters

Parameter	Type	Example	Description
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
VpcId	String	vpc-bp1ub1yt9cvakoelj****	The ID of the VPC for which the VPN gateway is created.

Parameter	Type	Example	Description
VSwitchId	String	vsw-bp1y9ovl1cu9ou4tv****	The ID of the vSwitch to which the VPN gateway is attached.
InternetIp	String	116.XX.XX.222	The public IP address of the VPN gateway.
CreateTime	Long	1495382400000	The timestamp generated when the VPN gateway was created.
EndTime	Long	1495382400000	The timestamp to be generated when the VPN gateway expires.
Spec	String	5 M	The maximum bandwidth of the VPN gateway. Unit: Mbit/s.
Name	String	vpngatewayname	The name of the VPN gateway.
Description	String	vpngatewaydescription	The description of the VPN gateway.
Status	String	init	The status of the VPN gateway. • **init**: The VPN gateway is being initialized. • **provisioning** : The VPN gateway is being prepared. • **active**: The VPN gateway is running as expected. • **updating**: The VPN gateway is being updated. • **Deleting**: The VPN gateway is being deleted.
BusinessStatus	String	Normal	The payment status of the VPN gateway. • **Normal**: The VPN gateway is running as expected. • **FinancialLocked**: The VPN gateway is locked due to overdue payments.
ChargeType	String	PostpayByFlow	The billing method of the VPN gateway. Valid value: **PostpayByFlow**.

Parameter	Type	Example	Description
IpsecVpn	String	enable	Indicates whether the IPsec-VPN feature is enabled. • **enable**: IPsec-VPN is enabled. • **disable** : IPsec-VPN is disabled.
RequestId	String	E98A9651-7098-40C7-8F85-C818D1EBBA85	The ID of the request.
SslMaxConnections	Long	5	The maximum number of concurrent SSL-VPN connections.
SslVpn	String	enable	Indicates whether the SSL-VPN feature is enabled. • **enable**: SSL-VPN is enabled. • **disable** : SSL-VPN is disabled.
Tag	String	tag1	The tag of the VPN gateway.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnGateway
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnGatewayResponse>
      <Status>active</Status>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <Spec>5M</Spec>
      <BusinessStatus>Normal</BusinessStatus>
      <RequestId>E98A9651-7098-40C7-8F85-C818D1EBBA85</RequestId>
      <CreateTime>1492753580000</CreateTime>
      <InternetIp>116.XX.XX.222</InternetIp>
      <EndTime>1495382400000</EndTime>
      <VSwitchId>vsw-bp1y9ovl1cu9ou4tv****</VSwitchId>
      <VpcId>vpc-bp1ub1yt9cvakoelj****</VpcId>
</DescribeVpnGatewayResponse>
```

`JSON` format

```
{
    "Status": "active",
    "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
    "BusinessStatus": "Normal",
    "Spec": "5M",
    "CreateTime": 1492753580000,
    "RequestId": "E98A9651-7098-40C7-8F85-C818D1EBBA85",
    "InternetIp": "116.XX.XX.222",
    "EndTime": 1495382400000,
    "VSwitchId": "vsw-bp1y9ovl1cu9ou4tv****",
    "VpcId": "vpc-bp1ub1yt9cvakoelj****"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.

17.1.4.5. DeleteVpnGateway

Deletes a specified VPN gateway.

> **Note** You cannot delete a VPN gateway that is associated with an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnGateway	The operation that you want to perform. Set the value to **DeleteVpnGateway**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnGateway
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteNatGatewayResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</DeleteNatGatewayResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
403	ForbiddenRelease	Forbidden to release a prepaid instance within validity period	The error message returned because you cannot release a subscription VPN gateway within the subscription duration.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.Configuring	The specified VPN gateway is being configured.	The error message returned because the VPN gateway is being configured.

17.1.5. Customer gateway

17.1.5.1. CreateCustomerGateway

Creates a customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateCustomerGateway	The operation that you want to perform. Set the value to **CreateCustomerGateway**.
IpAddress	String	Yes	116.XX.XX.222	The IP address of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the customer gateway. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	Gateway	The name of the customer gateway. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.
Description	String	No	Gateway	The description of the customer gateway. The description must be 2 to 256 characters in length, and contain digits, hyphens (-), underscores (_), full width periods (。), full width commas (，), and full width colons (：). The description cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1aw0a5nfff03xp1****	The ID of the customer gateway.
IpAddress	String	100.XX.XX.1	The IP address of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
CreateTime	Long	1493363486000	The timestamp generated when the customer gateway was created.
RequestId	String	cgw-bp1aw0a5nfff03xp1pcqc	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateCustomerGateway
&IpAddress=116.XX.XX.222
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateCustomerGatewayResponse>
      <CustomerGatewayId>cgw-bp1aw0a5nfff03xp****</CustomerGatewayId>
      <RequestId>185E81B1-3916-4667-B48F-C52409B33F2B</RequestId>
      <CreateTime>1493363486000</CreateTime>
      <IpAddress>100.XX.XX.1</IpAddress>
</CreateCustomerGatewayResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1jrawp82av6bws9****",
    "CreateTime": 1493363599000,
    "RequestId": "D32B3C26-6C6C-4988-93E9-D2A6444CE6AE",
    "IpAddress": "100.XX.XX.1"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	InvalidIpAddress.AlreadyExist	Specified IpAddress is already exist.	The error message returned because the specified IP address already exists. The IP addresses must be unique in the same region.
400	InvalidIpAddress.WrongFormat	Specified IpAddress is invalid.	The error message returned because the specified IP address is invalid.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	InvalidDescription	The description is not valid	The error message returned because the description format of the specified parameter is invalid.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.

17.1.5.2. ModifyCustomerGatewayAttribute

Modifies the name and description of a customer gateway.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyCustomerGatewayAttribute	The operation that you want to perform. Set the value to **ModifyCustomerGatewayAttribute**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	test	The name of the customer gateway. The name must be 2 to 128 characters in length, and can contain letters, digits, periods (.), underscores (_), and hyphens (-). The name must start with a letter, but cannot start with `http://` or `https://`.
Description	String	No	test	The description of the customer gateway. The description must be 2 to 256 characters in length, and can contain letters, digits, hyphens (-), underscores (_), full width periods (。), full width commas (，), and full width colons (：). The description must start with a letter, but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.55	The IP address of the customer gateway.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.
RequestId	String	E61293C8-AF07-4E87-A272-542680038F93	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyCustomerGatewayAttribute
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyCustomerGatewayAttributeResponse>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <RequestId>E61293C8-AF07-4E87-A272-542680038F93</RequestId>
      <CreateTime>1492747187000</CreateTime>
      <IpAddress>139.XX.XX.55</IpAddress>
      <Description>modify</Description>
</ModifyCustomerGatewayAttributeResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "RequestId": "8AA5CE21-2E6A-4530-BDF5-F055849476E6",
    "CreateTime": 1492747187000,
    "IpAddress": "139.XX.XX.55",
    "Description": "modify"
    }
```

Error codes

HttpCode	Error code	Error message	Required
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform this operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	InvalidDescription	The description is not valid	The error message returned because the format of the specified description is invalid.

17.1.5.3. DescribeCustomerGateways

Queries customer gateways in a specified region.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCustomerGateways	The operation that you want to perform. Set the value to **DescribeCustomerGateways**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateways are created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
CustomerGatewayId	String	No	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
CustomerGateways	Array of CustomerGateway		Detailed information about the customer gateways.
CustomerGateway			
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.55	The IP address of the customer gateway.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.
TotalCount	Integer	1	The number of entries returned.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeCustomerGateways
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeCustomerGatewaysResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
      <CustomerGateways>
            <CustomerGateway>
                  <Name>test</Name>
                  <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
                  <CreateTime>1492747187000</CreateTime>
                  <IpAddress>139.XX.XX.55</IpAddress>
            </CustomerGateway>
      </CustomerGateways>
</DescribeCustomerGatewaysResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "E82612A9-CB90-4D7E-B394-1DB7F6509B29",
    "CustomerGateways": {
        "CustomerGateway": [
            {
                "Name": "test",
                "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
                "CreateTime": 1492747187000,
                "IpAddress": "139.XX.XX.55"
            }
        ]
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.5.4. DescribeCustomerGateway

Queries details of a specified customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCustomerGateway	The operation that you want to perform. Set the value to **DescribeCustomerGateway**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.

Response parameters

Parameter	Type	Example	Description
CustomerGatewayId	String	cgw-bp1pvpl9r9adju6l5****	The ID of the customer gateway.

Parameter	Type	Example	Description
Name	String	test	The name of the customer gateway.
Description	String	test	The description of the customer gateway.
IpAddress	String	139.XX.XX.32	The IP address of the customer gateway.
RequestId	String	99506ECB-218F-45A5-AE8E-79518451F615	The ID of the request.
CreateTime	Long	1492747187000	The timestamp generated when the customer gateway was created.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeCustomerGateway
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeCustomerGatewayResponse>
      <Name>test</Name>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <CreateTime>1492747187000</CreateTime>
      <RequestId>99506ECB-218F-45A5-AE8E-79518451F615</RequestId>
      <IpAddress>139.XX.XX.32</IpAddress>
</DescribeCustomerGatewayResponse>
```

`JSON` format

```
{
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "Name": "test",
    "RequestId": "A0457BC9-6C0F-4437-AB9D-FB2EABC1D6A2",
    "CreateTime": 1492747187000,
    "IpAddress": "139.XX.XX.32"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.

17.1.5.5. DeleteCustomerGateway

Deletes a specified customer gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteCustomerGateway	The operation that you want to perform. Set the value to **DeleteCustomerGateway**.
CustomerGatewayId	String	Yes	cgw-2zllmw9lqrcdis3bd****	The ID of the customer gateway.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the customer gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteCustomerGateway
&CustomerGatewayId=vpn-bp1q8bgx4xnkm2ogj****
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteCustomerGatewayResesponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteCustomerGatewayResesponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.

17.1.6. Routes for VPN gateways

17.1.6.1. CreateVpnRouteEntry

Creates a destination-based route on a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnRouteEntry	The operation that you want to perform. Set the value to **CreateVpnRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the destination-based route to the route table of the associated virtual private cloud (VPC). • **true**: advertises the destination-based route to the route table of the associated VPC. • **false**: does not advertise the destination-based route to the route table of the associated VPC.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the destination-based route. Valid values: • **0**: specifies a low priority for the route. • **100**:specifies a high priority for the route. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Description	String	No	mytest	The description of the destination-based route.
OverlayMode	String	No	Ipsec	The overlay mode.

Response parameters

Parameter	Type	Example	Description
CreateTime	Long	1492747187000	The timestamp generated when the destination-based route was created.
Description	String	mytest	The description of the destination-based route.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
OverlayMode	String	Ipsec	The overlay mode.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the destination-based route.
State	String	published	The status of the destination-based route. • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the destination-based route. Valid values: **0** and **100**.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnRouteEntryResponse>
   <RouteDest>10.0.0.0/24</RouteDest>
   <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
   <OverlayMode>Ipsec</OverlayMode>
   <State>published</State>
   <Weight>100</Weight>
   <CreateTime>1563873294331</CreateTime>
   <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
      <RequestId>EE4C2417-9437-4333-BDEB-8493F7AA7258</RequestId>
</CreateVpnRouteEntryResponse>
```

`JSON` format

```
{
    "RouteDest": "10.0.0.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "OverlayMode": "Ipsec",
    "State": "published",
    "Weight": 100,
    "CreateTime": 1563873294331,
    "NextHop": "vco-bp1tui07ob10fmuro****",
    "RequestId":"CB2793A8-845F-444C-8E93-76F1BBDF9C78"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.2. ModifyVpnRouteEntryWeight

Modifies the weight of a destination-based route for a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnRouteEntryWeight	The operation that you want to perform. Set the value to **ModifyVpnRouteEntryWeight**.
NewWeight	Integer	Yes	100	The new weight you want to set for the destination-based route. • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The current weight of the destination-based route. Valid values: **0** and **100**.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnRouteEntryWeight
&NewWeight=100
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnRouteEntryWeightResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</ModifyVpnRouteEntryWeightResponse>
```

`JSON` format

```
{
    "RequestId": "E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.3. DeleteVpnRouteEntry

Deletes a destination-based route from a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnRouteEntry	The operation that you want to perform. Set the value to **DeleteVpnRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the destination-based route. Valid values: • **0:**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two destination-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.

Parameter	Type	Required	Example	Description
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnRouteEntryResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</DeleteVpnRouteEntryResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.4. DescribeVpnRouteEntries

Queries destination-based routes of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnRouteEntries	The operation that you want to perform. Set the value to **DescribeVpnRouteEntries**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the destination-based routes are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	10	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.
TotalCount	Integer	10	The number of returned entries.
VpnRouteEntries	Array of VpnRouteEntry		The detailed information about the destination-based routes.
VpnRouteEntry			
CreateTime	Long	1492747187000	The timestamp generated when the destination-based route was created.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the destination-based route.

Parameter	Type	Example	Description
RouteDest	String	10.0.0.0/24	The destination CIDR block of the destination-based route.
State	String	published	The status of the destination-based route. • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the destination-based route. Valid values: • **0**: indicates that the priority of the route entry is low. • **100**: indicates that the priority of the route entry is high.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnRouteEntries
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnRouteEntriesResponse>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
   <VpnRouteEntries>
      <VpnRouteEntry>
         <RouteDest>10.0.0.0/24</RouteDest>
         <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
         <State>normal</State>
         <Weight>100</Weight>
         <CreateTime>1563874074000</CreateTime>
         <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
      </VpnRouteEntry>
   </VpnRouteEntries>
   <PageSize>10</PageSize>
   <RequestId>BF3995A6-FA4F-4C74-B90F-89ECF4BFF4D5</RequestId>
</DescribeVpnRouteEntriesResponse>
```

`JSON` format

```
{
 "PageNumber": 1,
 "TotalCount": 1,
 "VpnRouteEntries": {
  "VpnRouteEntry": [
   {
    "RouteDest": "10.0.0.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "State": "normal",
    "Weight": 100,
    "CreateTime": 1563874074000,
    "NextHop": "vco-bp1tui07ob10fmuro****"
   }
  ]
 },
 "PageSize": 10,
 "RequestId": "BF3995A6-FA4F-4C74-B90F-89ECF4BFF4D5"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.6.5. PublishVpnRouteEntry

Advertises a route of a VPN gateway to the route table of the associated virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PublishVpnRouteEntry	The operation that you want to perform. Set the value to **PublishVpnRouteEntry**.

Parameter	Type	Required	Example	Description
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the route of the VPN gateway to the route table of the associated VPC. • **true**: advertises the route to the route table of the associated VPC. • **false**: does not advertise the route to the route table of the associated VPC.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the route of the VPN gateway is deployed. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the route of the VPN gateway.
RouteType	String	Yes	pbr	The type of the route of the VPN gateway. Valid values: • **pbr**: policy-based route. • **dbr**: destination-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=PublishVpnRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteType=pbr
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PublishVpnRouteEntryResponse>
      <RequestId>EE4C2417-9437-4333-BDEB-8493F7AA7258</RequestId>
</PublishVpnRouteEntryResponse>
```

`JSON` format

```
{
    "RequestId":"CB2793A8-845F-444C-8E93-76F1BBDF9C78"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.6. CreateVpnPbrRouteEntry

Creates a policy-based route for a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnPbrRouteEntry	The operation that you want to perform. Set the value to **CreateVpnPbrRouteEntry**.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
PublishVpc	Boolean	Yes	true	Specifies whether to advertise the policy-based route to the route table of the associated virtual private cloud (VPC). Valid values: • **true**: advertises the policy-based route to the route table of the associated VPC . • **false**: does not advertise the policy-based route to the route table of the associated VPC.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where you want to create the policy-based route for the VPN gateway. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the policy-based route. Valid values: • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Description	String	No	vpnroute1	The description of the policy-based route.
OverlayMode	String	No	Ipsec	The overlay mode.

Response parameters

Parameter	Type	Example	Description
CreateTime	Long	1492747187000	The timestamp generated when the policy-based route was created.
Description	String	vpnroute1	The description of the policy-based route.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
OverlayMode	String	Ipsec	The overlay mode.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	192.168.1.0/24	The source CIDR block of the policy-based route.
State	String	normal	The status of the policy-based route. Valid values: • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the policy-based route. Valid values: **0** and **100**.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnPbrRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&PublishVpc=true
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnPbrRouteEntryResponse>
   <RouteDest>10.0.0.0/24</RouteDest>
   <RouteSource>192.168.1.0/24</RouteSource>
   <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
   <OverlayMode>Ipsec</OverlayMode>
   <State>published</State>
   <Weight>100</Weight>
   <CreateTime>1563873294331</CreateTime>
   <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
</CreateVpnPbrRouteEntryResponse>
```

`JSON` format

```
{
    "RouteDest": "10.0.0.0/24",
    "RouteSource": "192.168.1.0/24",
    "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
    "OverlayMode": "Ipsec",
    "State": "published",
    "Weight": 100,
    "CreateTime": 1563873294331,
    "NextHop": "vco-bp1tui07ob10fmuro****"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.7. ModifyVpnPbrRouteEntryWeight

Modifies the weight of a policy-based route of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnPbrRouteEntryWeight	The operation that you want to perform. Set the value to **ModifyVpnPbrRouteEntryWeight**.

Parameter	Type	Required	Example	Description
NewWeight	Integer	Yes	100	The new weight you want to set for the policy-based route. • **0**: specifies a low priority for the route entry. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The original weight of the policy-based route. Valid values: **0** and **100**.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnPbrRouteEntryWeight
&NewWeight=100
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnPbrRouteEntryWeightResponse>
        <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</ModifyVpnPbrRouteEntryWeightResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.8. DeleteVpnPbrRouteEntry

Deletes a policy-based route from a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnPbrRouteEntry	The operation that you want to perform. Set the value to **DeleteVpnPbrRouteEntry**.

Parameter	Type	Required	Example	Description
NextHop	String	Yes	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based route is created. You can call the `DescribeRegions` operation to query the most recent region list.
RouteDest	String	Yes	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	Yes	192.168.1.0/24	The source CIDR block of the policy-based route.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
Weight	Integer	Yes	0	The weight of the policy-based route. Valid values: • **0**: specifies a low priority for the route. • **100**: specifies a high priority for the route entry. **Note** If two policy-based route entries are configured with the same destination CIDR block, you cannot set the weights of both route entries to 100.
ClientToken	String	No	d7d24a21-f4ba-4454-9173-b3828dae492b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
OverlayMode	String	No	Ipsec	The overlay mode. Set the value to **Ipsec** (IPsec tunneling).

Response parameters

Parameter	Type	Example	Description
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnPbrRouteEntry
&NextHop=vco-bp15oes1py4i66rmd****
&RegionId=cn-qingdao-env66-d01
&RouteDest=10.0.0.0/24
&RouteSource=192.168.1.0/24
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&Weight=0
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnPbrRouteEntryResponse>
      <RequestId>5BE01CD7-5A50-472D-AC14-CA181C5C03BE</RequestId>
</DeleteVpnPbrRouteEntryResponse>
```

`JSON` format

```
{
 "RequestId":"E82612A9-CB90-4D7E-B394-1DB7F6509B29"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

HttpCode	Error code	Error message	Description
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.6.9. DescribeVpnPbrRouteEntries

Queries policy-based routes of a VPN gateway.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnPbrRouteEntries	The operation that you want to perform. Set the value to **DescribeVpnPbrRouteEntries**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the policy-based routes are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1a3kqjiiq9legfx****	The ID of the VPN gateway.
PageNumber	Integer	No	10	The number of the page to return. Default value: **1**.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
TotalCount	Integer	12	The number of returned entries.
VpnPbrRouteEntries	Array of VpnPbrRouteEntry		The detailed information about the policy-based routes.
VpnPbrRouteEntry			
CreateTime	Long	1492747187000	The timestamp generated when the policy-based route was created.
NextHop	String	vco-bp15oes1py4i66rmd****	The next hop of the policy-based route.
RouteDest	String	10.0.0.0/24	The destination CIDR block of the policy-based route.
RouteSource	String	192.xx.0.0/24	The source CIDR block of the policy-based route.

Parameter	Type	Example	Description
State	String	published	The status of the policy-based route. Valid values: • **published**: The route is advertised. • **normal**: The route is not advertised.
VpnInstanceId	String	vpn-bp1cmw7jh1nfe43m9****	The ID of the VPN gateway.
Weight	Integer	0	The weight of the policy-based route. Valid values: • **0**: indicates that the priority of the route entry is low. • **100**: indicates that the priority of the route entry is high.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnPbrRouteEntries
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1a3kqjiiq9legfx****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnPbrRouteEntriesResponse>
   <PageNumber>1</PageNumber>
   <TotalCount>1</TotalCount>
   <RequestId>E5D94DC7-AEC7-4E73-A203-61B04D1F1160</RequestId>
   <PageSize>10</PageSize>
   <VpnPbrRouteEntries>
      <VpnPbrRouteEntry>
         <RouteDest>10.0.0.0/32</RouteDest>
         <VpnInstanceId>vpn-bp1cmw7jh1nfe43m9****</VpnInstanceId>
         <State>published</State>
         <Weight>100</Weight>
         <CreateTime>1563881012000</CreateTime>
         <NextHop>vco-bp1tui07ob10fmuro****</NextHop>
         <RouteSource>11.0.0.0/32</RouteSource>
      </VpnPbrRouteEntry>
   </VpnPbrRouteEntries>
</DescribeVpnPbrRouteEntriesResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "TotalCount": 1,
    "RequestId": "E5D94DC7-AEC7-4E73-A203-61B04D1F1160",
    "PageSize": 10,
    "VpnPbrRouteEntries": {
        "VpnPbrRouteEntry": [
            {
                "RouteDest": "10.0.0.0/32",
                "VpnInstanceId": "vpn-bp1cmw7jh1nfe43m9****",
                "State": "published",
                "Weight": 100,
                "CreateTime": 1563881012000,
                "NextHop": "vco-bp1tui07ob10fmuro****",
                "RouteSource": "11.0.0.0/32"
            }
        ]
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.7. IPsec-VPN

17.1.7.1. CreateVpnConnection

Creates an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpnConnection	The operation that you want to perform. Set the value to **CreateVpnConnection**.
CustomerGatewayId	String	Yes	vpn-bp1q8bgx4xnk****	The ID of the customer gateway.
LocalSubnet	String	Yes	10.1.1.0/24,10.1.2.0/24	The CIDR block of the virtual private cloud (VPC) that is used to connect with the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.1.0/24,192.168.2.0/24.
RegionId	String	Yes	cn-qingdao-env66-d01	The region ID of the IPsec-VPN connection. You can call the `DescribeRegions` operation to query the most recent region list.
RemoteSubnet	String	Yes	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center. The peer CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.3.0/24,192.168.4.0/24.
VpnGatewayId	String	Yes	vpn-bp1q8bgx4xnkm****	The ID of the VPN gateway.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001****	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Parameter	Type	Required	Example	Description
Name	String	No	IPsec	The name of the IPsec-VPN connection. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter and cannot start with `http://` or `https://`.
EffectImmediately	Boolean	No	false	Specifies whether to delete the current IPsec tunnel and reinitiate negotiations. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected. This is the default value.

Parameter	Type	Required	Example	Description
IkeConfig	String	No	{"IkeVersion":"ikev1","IkeMode":"main","IkeEncAlg":"aes","IkeAuthAlg":"sha1","IkePfs":"group2","IkeLifetime":86400}	The configuration of Phase 1 negotiations: • **IkeConfig.Psk**: the pre-shared key that is used to authenticate the VPN gateway and the customer gateway. By default, a random value is generated. You can also specify a pre-shared key. The description cannot exceed 100 characters in length. • **IkeConfig.IkeVersion**: The version of the IKE protocol. Valid values: **ikev1** and **ikev2**. Default value: **ikev1**. • **IkeConfig.IkeMode**: the negotiation mode of IKE V1. Valid values: **main** and **aggressive**. Default value: **main**. • **IkeConfig.IkeEncAlg**: The encryption algorithm used in Phase 1 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IkeConfig.IkeAuthAlg**: The authentication algorithm used in Phase 1 negotiations. Valid values: **md5** and **sha1**. Default value: **md5**. • **IkeConfig.IkePfs**: The Diffie-Hellman key exchange algorithm used in Phase 1 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IkeConfig.IkeLifetime**: the SA lifetime as a result of Phase 1 negotiations. Valid values: **0 to 86400**. Unit: seconds. Default value: **86400**. • **IkeConfig.LocalIdIPsec**: the identifier of the VPN gateway. This parameter can contain up to 100 characters. The default value is the public IP address of the VPN gateway. • **IkeConfig.RemoteId**: the identifier of the customer gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the customer gateway.

Parameter	Type	Required	Example	Description
IpsecConfig	String	No	{"IpsecEncAlg":"aes","IpsecAuthAlg":"sha1","IpsecPfs":"group2","IpsecLifetime":86400}	The configuration of Phase 2 negotiations: • **IpsecConfig.IpsecEncAlg**: The encryption algorithm used in Phase 2 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IpsecConfig. IpsecAuthAlg**: The authentication algorithm used in Phase 2 negotiations. Valid values: **md5** and **sha1**. Default value: **md5**. • **IpsecConfig. IpsecPfs**: the Diffie-Hellman group for perfect forward secrecy (PFS). If you set this parameter, the system forwards packets of all protocols. The Diffie-Hellman key exchange algorithm used in Phase 2 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IpsecConfig. IpsecLifetime**: the SA lifetime as a result of Phase 2 negotiations. Valid values: **0 to 86400**. Unit: seconds. Default value: **86400**.
HealthCheckConfig	String	No	{"enable":"true","dip":"192.168.xx.2","sip":"192.168.xx.2","interval":"3","retry":"3"}	The health check configuration: • **HealthCheckConfig.enable**: specifies whether to enable health checks. Valid values: **true and false**. Default value: false. • **HealthCheckConfig.dip**: the destination IP address configured for health checks. • **HealthCheckConfig.sip**: the source IP address configured for health checks. • **HealthCheckConfig.interval**: the time interval of health check retries. Unit: seconds. • **HealthCheckConfig.retry**: the maximum number of health check retries.

Parameter	Type	Required	Example	Description
AutoConfigRoute	Boolean	No	true	Specifies whether to automatically configure routes. Valid values: • **true**: enables automatic configuration. • **false**: disables automatic configuration. This is the default value.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp15oes1py4i6****	The ID of the IPsec-VPN connection.
CreateTime	Long	1544666102000	The timestamp generated when the IPsec-VPN connection was created.
Name	String	test	The name of the IPsec-VPN connection.
RequestId	String	082AD562-B8DB-4BB2-861F-DA1FCA01FD76	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateVpnConnection
&CustomerGatewayId=vpn-bp1q8bgx4xnk****
&LocalSubnet=10.1.1.0/24,10.1.2.0/24
&RegionId=cn-qingdao-env66-d01
&RemoteSubnet=10.10.1.0/24,10.10.2.0/24
&VpnGatewayId=vpn-bp1q8bgx4xnkm****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateVpnConnectionResponse>
      <VpnConnectionId>vco-bp1bbi27hojx8****</VpnConnectionId>
      <CreateTime>1493363928000</CreateTime>
</CreateVpnConnectionResponse>
```

`JSON` format

```
{
    "CreateTime": 1544666102000,
    "VpnConnectionId": "vco-bp15oes1py4i6****"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
404	InvalidCustomerGatewayInstanceId.NotFound	The specified customer gateway instance id does not exist.	The error message returned because the specified instance ID does not exist.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	InvalidVpnConnection.AlreadyExists	Vpn connection already exists.	The error message returned because the IPsec-VPN connection already exists.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.7.2. ModifyVpnConnectionAttribute

Modifies the configuration of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyVpnConnectionAttribute	The operation that you want to perform. Set the value to **ModifyVpnConnectionAttribute**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	IPsec	The name of the IPsec-VPN connection. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.
LocalSubnet	String	No	10.1.1.0/24,10.1.2.0/24	The CIDR block of the virtual private cloud (VPC) that is used to connect with the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.1.0/24,192.168.2.0/24.

Parameter	Type	Required	Example	Description
RemoteSubnet	String	No	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center. This CIDR block is used in Phase 2 negotiations. Separate multiple CIDR blocks with commas (,). Example: 192.168.3.0/24,192.168.4.0/24.
EffectImmediately	Boolean	No	false	Specifies whether to delete the current IPsec tunnel and reinitiate negotiations. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected. This is the default value.

Parameter	Type	Required	Example	Description
IkeConfig	String	No	{"IkeVersion":"ikev1","IkeMode":"main","IkeEncAlg":"aes","IkeAuthAlg":"sha1","IkePfs":"group2","IkeLifetime":86400}	The configuration of Phase 1 negotiations: • **IkeConfig.Psk**: the pre-shared key that is used to authenticate the VPN gateway and the customer gateway. You can specify a key or use the default key that is randomly generated by the system. The key must be 1 to 100 characters in length. • **IkeConfig.IkeVersion**: the version of the IKE protocol. Valid values: **ikev1** and **ikev2**. Default value: **ikev1**. • **IkeConfig.IkeMode**: the negotiation mode of IKE V1. Valid values: **main** and **aggressive**. Default value: **main**. • **IkeConfig.IkeEncAlg**: The encryption algorithm of Phase 1 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IkeConfig.IkeAuthAlg**: The authentication algorithm of Phase 1 negotiations. Valid values: **md5** and **sha1**. Default value: **sha1**. IkeConfig.IkePfs: The Diffie-Hellman key exchange algorithm of Phase 1 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IkeConfig.IkeLifetime**: the SA lifetime as a result of Phase 1 negotiations. Valid values: **0** to **86400**. Unit: seconds. Default value: **86400**. • **IkeConfig.LocalIdIPsec**: the identifier of the VPN gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the VPN gateway. • **IkeConfig.RemoteId**: the identifier of the customer gateway. This parameter can contain up to 100 characters. By default, it is the public IP address of the customer gateway.

Parameter	Type	Required	Example	Description
IpsecConfig	String	No	{"IpsecEncAlg":"aes","IpsecAuthAlg":"sha1","IpsecPfs":"group2","IpsecLifetime":86400}	The configuration of Phase 2 negotiations: • **IpsecConfig.IpsecEncAlg**: The encryption algorithm of Phase 2 negotiations. Valid values: **aes**, **aes192**, **aes256**, **des**, and **3des**. Default value: **aes**. • **IpsecConfig. IpsecAuthAlg**: The authentication algorithm of Phase 2 negotiations. Valid values: **md5** and **sha1**. Default value: **sha1**. • **IpsecConfig. IpsecPfs**: the Diffie-Hellman group for perfect forward secrecy (PFS). If you set this parameter, the system forwards packets of all protocols. The Diffie-Hellman key exchange algorithm of Phase 2 negotiations. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**. Default value: **group2**. • **IpsecConfig. IpsecLifetime**: the SA lifetime as a result of Phase 2 negotiations. Valid values: **0** to **86400**. Unit: seconds. Default value: **86400**.
HealthCheckConfig	String	No	{"enable":"true","dip":"192.168.xx.2","sip":"192.168.xx.2","interval":"3","retry":"3"}	The health check configuration: • **HealthCheckConfig.enable**: specifies whether to enable health checks. Valid values: **true and false**. Default value: false. • **HealthCheckConfig.dip**: the destination IP address configured for the health check. • **HealthCheckConfig.sip**: the source IP address configured for the health check. • **HealthCheckConfig.interval**: the time interval of health check retries. Unit: seconds. • **HealthCheckConfig.retry**: the maximum number of health check retries.

Parameter	Type	Required	Example	Description
AutoConfigRoute	Boolean	No	true	Specifies whether to automatically advertise routes. Valid values: • **true**: enables automatic advertising. • **false**: disables automatic advertising. This is the default value.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Name	String	test	The name of the IPsec-VPN connection.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The timestamp generated when the IPsec-VPN connection was created.
Description	String	description	The description of the IPsec-VPN connection.
EffectImmediately	Boolean	false	Indicates whether IPsec-VPN negotiations are initiated immediately. Valid values: • **true**: initiates negotiations after the configuration is completed. • **false**: initiates negotiations when inbound traffic is detected.
IkeConfig	Struct		The configuration of Phase 1 negotiations.

Parameter	Type	Example	Description
IkeAuthAlg	String	sha1	The IKE authentication algorithm.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime.
IkeMode	String	main	The IKE mode.
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.64	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8i****	The pre-shared key.
RemoteId	String	139.XX.XX.167	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.
IpsecPfs	String	group2	The DH group.
RequestId	String	7DB79D0C-5F27-4AB5-995B-79BE55102F90	The ID of the request.
VcoHealthCheck	Struct		The health check configuration.

Parameter	Type	Example	Description
Dip	String	1.XX.XX.1	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **true**: Health checks are enabled. • **false**: Health checks are disabled.
Interval	Integer	3	The interval between two consecutive health checks. Unit: seconds.
Retry	Integer	1	The maximum number of health check retries.
Sip	String	2.XX.XX.2	The source IP address.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyVpnConnectionAttribute
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyVpnConnectionAttributeResponse>
      <Name>vpn</Name>
      <CustomerGatewayId>cgw-bp1pvpl9r9adju6l5****</CustomerGatewayId>
      <RemoteSubnet>172.16.2.0/24</RemoteSubnet>
      <IpsecConfig>
            <IpsecLifetime>86400</IpsecLifetime>
            <IpsecAuthAlg>sha1</IpsecAuthAlg>
            <IpsecPfs>group2</IpsecPfs>
            <IpsecEncAlg>aes</IpsecEncAlg>
      </IpsecConfig>
      <EffectImmediately>false</EffectImmediately>
      <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
      <CreateTime>1492753817000</CreateTime>
      <VpnConnectionId>vco-bp10lz7aejumd2vxo****</VpnConnectionId>
      <RequestId>57070A3D-38F2-40A6-A1C9-DB14542EF54D</RequestId>
      <LocalSubnet>10.1.1.0/24,10.1.2.0/24</LocalSubnet>
      <IkeConfig>
            <IkeEncAlg>aes</IkeEncAlg>
            <RemoteId>139.XX.XX.32</RemoteId>
            <IkePfs>group2</IkePfs>
            <IkeAuthAlg>sha1</IkeAuthAlg>
            <Psk>pgw6dy7d1i8i****</Psk>
            <IkeMode>main</IkeMode>
            <IkeLifetime>86400</IkeLifetime>
            <IkeVersion>ikev1</IkeVersion>
            <LocalId>116.XX.XX.69</LocalId>
      </IkeConfig>
</ModifyVpnConnectionAttributeResponse>
```

`JSON` format

```
{
    "Name": "vpn",
    "CustomerGatewayId": "cgw-bp1pvpl9r9adju6l5****",
    "RemoteSubnet": "172.16.2.0/24",
    "IpsecConfig": {
        "IpsecLifetime": 86400,
        "IpsecAuthAlg": "sha1",
        "IpsecPfs": "group2",
        "IpsecEncAlg": "aes"
    },
    "EffectImmediately": false,
    "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
    "CreateTime": 1492753817000,
    "VpnConnectionId": "vco-bp10lz7aejumd2vxo****",
    "RequestId": "7DB79D0C-5F27-4AB5-995B-79BE55102F90",
    "LocalSubnet": "10.1.1.0/24,10.1.2.0/24",
    "IkeConfig": {
        "IkeEncAlg": "aes",
        "RemoteId": "139.XX.XX.32",
        "IkePfs": "group2",
        "IkeAuthAlg": "sha1",
        "Psk": "pgw6dy7d1i8i****",
        "IkeMode": "main",
        "IkeLifetime": 86400,
        "IkeVersion": "ikev1",
        "LocalId": "116.XX.XX.69"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. You can check whether the configuration of the connection is valid.

HttpCode	Error code	Error message	Description
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

17.1.7.3. DescribeVpnConnections

Queries one or more IPsec-VPN connections.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnConnections	The operation that you want to perform. Set the value to **DescribeVpnConnections**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connections are created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	No	vpn-bp1q8bgx4xnkx****	The ID of the VPN gateway.
CustomerGatewayId	String	No	cgw-bp1mvj4g9kogw****	The ID of the customer gateway.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.

Parameter	Type	Required	Example	Description
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.
VpnConnectionId	String	No	vco-bp15oes1py4i6****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
VpnConnections	Array of VpnConnection		The detailed information about the IPsec-VPN connections.
VpnConnection			
IkeConfig	Struct		The configuration of Phase 1 negotiations.
IkeAuthAlg	String	sha1	The IKE authentication algorithm. Valid values: **sha1** and **MD5**.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime. Unit: seconds.
IkeMode	String	main	The IKE mode. Valid values: **main** and **aggressive** . The **main** mode offers higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.
IkePfs	String	group2	The DH group. Valid values: **group1**, **group2**, **group5**, **group14**, and **group24**.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.64	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.

Parameter	Type	Example	Description
Psk	String	pgw6dy7d****	The pre-shared key.
RemoteId	String	139.XX.XX.167	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.Valid values: **sha1** and **md5**.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.
IpsecPfs	String	group2	The DH group.
VpnConnectionId	String	vco-bp10lz7aejumd****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	cgw-bp1mvj4g9kogw****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm****	The ID of the VPN gateway.
Name	String	name	The name of the IPsec-VPN connection.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The timestamp generated when the IPsec-VPN connection was created.

Parameter	Type	Example	Description
Status	String	ipsec_sa_established	The status of the IPsec-VPN connection. Valid values: • **ike_sa_not_established**: indicates that Phase 1 negotiations failed. • **ike_sa_established**: indicates that Phase 1 negotiations succeeded. • **ipsec_sa_not_established**: indicates that Phase 2 negotiations failed. • **ipsec_sa_established**: indicates that Phase 2 negotiations succeeded.
EffectImmediately	Boolean	true	Indicates whether IPsec-VPN negotiations are initiated immediately. Valid values: • **true**: Negotiations are reinitiated when the configuration is changed. • **false**: Negotiations are reinitiated when traffic is detected. When negotiations are reinitiated, transient connections may occur.
VcoHealthCheck	Struct		The configuration of health checks.
Dip	String	8.XX.XX.8	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **true**: Health checks are enabled. • **false**: Health checks are disabled.
Interval	Integer	2	The interval between two consecutive health checks. Unit: seconds.
Retry	Integer	1	The maximum number of health check retries.
Sip	String	192.XX.XX.66	The source IP address that is used for health checks.

Parameter	Type	Example	Description
Status	String	failed	The status of the health check. Valid values: • **failed**: The health check failed. • **success**: The health check was successful.
TotalCount	Integer	10	The number of entries.
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.
RequestId	String	54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnConnections
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnConnections>
   <PageNumber>1</PageNumber>
   <VpnConnections>
      <VpnConnection>
         <Name>VPN connection test</Name>
         <CustomerGatewayId>cgw-bp1pvpl9r9adjxxxxxxxx</CustomerGatewayId>
         <RemoteSubnet>172.16.2.0/24</RemoteSubnet>
         <IpsecConfig>
            <IpsecLifetime>86400</IpsecLifetime>
            <IpsecAuthAlg>sha1</IpsecAuthAlg>
            <IpsecPfs>group2</IpsecPfs>
            <IpsecEncAlg>aes</IpsecEncAlg>
         </IpsecConfig>
         <EffectImmediately>true</EffectImmediately>
         <VpnGatewayId>vpn-bp1q8bgx4xnkmxxxxxxxx</VpnGatewayId>
         <CreateTime>1492753817000</CreateTime>
         <VpnConnectionId>vco-bp10lz7aejumdxxxxxxxx</VpnConnectionId>
         <status>ipsec_sa_established</status>
         <LocalSubnet>10.1.1.0/24,10.1.2.0/24</LocalSubnet>
         <IkeConfig>
            <IkeEncAlg>aes</IkeEncAlg>
            <RemoteId>139.XX.XX.167</RemoteId>
            <IkePfs>group2</IkePfs>
            <IkeAuthAlg>sha1</IkeAuthAlg>
            <Psk>pgw6dy****</Psk>
            <IkeMode>main</IkeMode>
            <IkeLifetime>86400</IkeLifetime>
            <IkeVersion>ikev1</IkeVersion>
            <LocalId>116.XX.XX.64</LocalId>
         </IkeConfig>
      </VpnConnection>
   </VpnConnections>
   <TotalCount>1</TotalCount>
   <PageSize>10</PageSize>
   <RequestId>54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939</RequestId>
</DescribeVpnConnections>
```

`JSON` format

```
{
    "PageNumber": 1,
    "VpnConnections": {
        "VpnConnection": [
            {
                "Name": "vpn connection test",
                "CustomerGatewayId": "cgw-bp1pvpl9r9adjxxxxxxxx",
                "RemoteSubnet": "172.16.2.0/24",
                "IpsecConfig": {
                    "IpsecLifetime": 86400,
                    "IpsecAuthAlg": "sha1",
                    "IpsecPfs": "group2",
                    "IpsecEncAlg": "aes"
                },
                "EffectImmediately": true,
                "VpnGatewayId": "vpn-bp1q8bgx4xnkmxxxxxxxx",
                "CreateTime": 1492753817000,
                "VpnConnectionId": "vco-bp10lz7aejumdxxxxxxxx",
                "status": "ipsec_sa_established",
                "LocalSubnet": "10.1.1.0/24,10.1.2.0/24",
                "IkeConfig": {
                    "IkeEncAlg": "aes",
                    "RemoteId": "139.XX.XX.167",
                    "IkePfs": "group2",
                    "IkeAuthAlg": "sha1",
                    "Psk": "pgw6dy****",
                    "IkeMode": "main",
                    "IkeLifetime": 86400,
                    "IkeVersion": "ikev1",
                    "LocalId": "116.XX.XX.64"
                }
            }
        ]
    },
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "54A4B3D0-DF4D-4C54-B8DC-5DC8DD49C939"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.7.4. DescribeVpnConnection

Queries the details of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnConnection	The operation that you want to perform. Set the value to **DescribeVpnConnection**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
VpnConnectionId	String	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
CustomerGatewayId	String	cgw-bp1mvj4g9kogwwcxk****	The ID of the customer gateway.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.
Name	String	ipsec1	The name of the IPsec-VPN connection.

Parameter	Type	Example	Description
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.
CreateTime	Long	1492753817000	The time when the IPsec-VPN connection was created.
Status	String	ike_sa_not_established	The status of the IPsec-VPN connection. Valid values: • **ike_sa_not_established**: indicates that Phase 1 negotiations failed. • **ike_sa_established**: indicates that Phase 1 negotiations succeeded. • **ipsec_sa_not_established**: indicates that Phase 2 negotiations failed. • **ipsec_sa_established**: indicates that Phase 2 negotiations succeeded.
EffectImmediately	Boolean	true	Indicates whether the IPsec-VPN connection immediately takes effect. Valid values: • **true**: Negotiations are reinitiated when the configuration is changed. • **false**: Negotiations are reinitiated when traffic is detected. When negotiations are reinitiated, transient connections may occur.
IkeConfig	Struct		The configuration of Phase 1 negotiations.
IkeAuthAlg	String	sha1	The IKE authentication algorithm.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime.
IkeMode	String	main	The IKE mode. Both **main** and **aggressive** modes are supported. The main mode provides higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.

Parameter	Type	Example	Description
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.69	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8in7x5	The pre-shared key.
RemoteId	String	139.XX.XX.32	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of Phase 2 negotiations.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime.
IpsecPfs	String	group2	The DH group.
RequestId	String	F2310D45-BCF6-4E2E-9082-B4503844BA4C	The ID of the request.
VcoHealthCheck	Struct		The information about health checks.
Dip	String	10.XX.XX.1	The destination IP address.
Enable	String	true	Indicates whether health checks are enabled. Valid values: • **false**: Health checks are disabled. • **true**: Health checks are enabled.

Parameter	Type	Example	Description
Interval	Integer	3	The interval between two consecutive health checks. Unit: seconds.
Retry	Integer	3	The maximum number of health check retries.
Sip	String	192.XX.XX.2	The source IP address for health checks.
Status	String	failed	The status of the health check.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnConnection
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnConnectionResponse>
      <PageNumber>1</PageNumber>
      <VpnConnections>
            <VpnConnection>
                  <Name>c2</Name>
                  <CustomerGatewayId>cgw-bp1wl8dtz3auwlav****</CustomerGatewayId>
                  <Status>ike_sa_not_established</Status>
                  <RemoteSubnet>192.168.0.0/16</RemoteSubnet>
                  <IpsecConfig>
                        <IpsecLifetime>86400</IpsecLifetime>
                        <IpsecAuthAlg>md5</IpsecAuthAlg>
                        <IpsecPfs>group2</IpsecPfs>
                        <IpsecEncAlg>aes</IpsecEncAlg>
                  </IpsecConfig>
                  <EffectImmediately>false</EffectImmediately>
                  <VpnGatewayId>vpn-bp1yfrjxn4d5t63tb****</VpnGatewayId>
                  <CreateTime>1519391420000</CreateTime>
                  <VpnConnectionId>vco-bp1w3m1p23iftycvs****</VpnConnectionId>
                  <LocalSubnet>172.16.0.0/12</LocalSubnet>
                  <IkeConfig>
                        <IkeEncAlg>aes</IkeEncAlg>
                        <RemoteId>47.XX.XX.176</RemoteId>
                        <IkePfs>group2</IkePfs>
                        <IkeAuthAlg>sha1</IkeAuthAlg>
                        <Psk>1234567</Psk>
                        <IkeMode>aggressive</IkeMode>
                        <IkeLifetime>86400</IkeLifetime>
                        <IkeVersion>ikev1</IkeVersion>
                        <LocalId>116.XX.XX.119</LocalId>
                  </IkeConfig>
            </VpnConnection>
      </VpnConnections>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <RequestId>7D598A10-26EF-44F2-9F47-E417842F3CEA</RequestId>
</DescribeVpnConnectionResponse>
```

`JSON` format

```
{
    "PageNumber": 1,
    "VpnConnections": {
        "VpnConnection": [
            {
                "Name": "c2",
                "CustomerGatewayId": "cgw-bp1wl8dtz3auwlavw****",
                "Status": "ike_sa_not_established",
                "RemoteSubnet": "192.168.0.0/16",
                "IpsecConfig": {
                    "IpsecLifetime": 86400,
                    "IpsecAuthAlg": "md5",
                    "IpsecPfs": "group2",
                    "IpsecEncAlg": "aes"
                },
                "EffectImmediately": false,
                "VpnGatewayId": "vpn-bp1yfrjxn4d5t63t****",
                "CreateTime": 1519391420000,
                "VpnConnectionId": "vco-bp1w3m1p23iftycv****",
                "LocalSubnet": "172.16.0.0/12",
                "IkeConfig": {
                    "IkeEncAlg": "aes",
                    "RemoteId": "47.XX.XX.176",
                    "IkePfs": "group2",
                    "IkeAuthAlg": "sha1",
                    "Psk": "1234567",
                    "IkeMode": "aggressive",
                    "IkeLifetime": 86400,
                    "IkeVersion": "ikev1",
                    "LocalId": "116.XX.XX.119"
                }
            }
        ]
    },
    "TotalCount": 1,
    "PageSize": 10,
    "RequestId": "7D598A10-26EF-44F2-9F47-E417842F3CEA"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.

17.1.7.5. DownloadVpnConnectionConfig

Queries the configuration of an IPsec-VPN connection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DownloadVpnConnectionConfig	The operation that you want to perform. Set the value to **DownloadVpnConnectionConfig**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0C68048B-0F70-40DA-B8AE-1B79B5CF62E3	The ID of the request.
VpnConnectionConfig	Struct		The configuration of the IPsec-VPN connection.

Parameter	Type	Example	Description
IkeConfig	Struct		The IKE configuration.
IkeAuthAlg	String	sha1	The IKE authentication algorithm. Valid values: **sha1** and **md5**.
IkeEncAlg	String	aes	The IKE encryption algorithm.
IkeLifetime	Long	86400	The IKE lifetime. Unit: seconds.
IkeMode	String	main	The IKE mode. Valid values: **main** and **aggressive**. The main mode offers higher security. If NAT traversal is enabled, we recommend that you select the **aggressive** mode.
IkePfs	String	group2	The DH group.
IkeVersion	String	ikev1	The IKE version.
LocalId	String	116.XX.XX.69	The local ID. The default value is the IP address of the VPN gateway. Both fully qualified domain names (FQDNs) and IP addresses are supported.
Psk	String	pgw6dy7d1i8i****	The pre-shared key.
RemoteId	String	139.XX.XX.32	The peer ID. The default value is the IP address of the customer gateway. Both FQDNs and IP addresses are supported.
IpsecConfig	Struct		The configuration of the IPsec-VPN connection.
IpsecAuthAlg	String	sha1	The IPsec authentication algorithm. Valid values: **sha1** and **md5**.
IpsecEncAlg	String	aes	The IPsec encryption algorithm.
IpsecLifetime	Long	86400	The IPsec lifetime. Unit: seconds.

Parameter	Type	Example	Description
IpsecPfs	String	group2	The DH group.
Local	String	139.XX.XX.32	The ID of the VPN gateway.
LocalSubnet	String	10.1.1.0/24,10.1.2.0/24	The CIDR block of the VPC.
Remote	String	116.XX.XX.69	The ID of the customer gateway.
RemoteSubnet	String	10.10.1.0/24,10.10.2.0/24	The CIDR block of the data center.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DownloadVpnConnectionConfig
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DownloadVpnConnectionConfigResponse>
      <RequestId>0C68048B-0F70-40DA-B8AE-1B79B5CF62E3</RequestId>
      <VpnConnectionConfig>
            <RemoteSubnet>10.10.1.0/24,10.10.2.0/24</RemoteSubnet>
            <Local>139.XX.XX.32</Local>
            <IpsecConfig>
                  <IpsecLifetime>86400</IpsecLifetime>
                  <IpsecAuthAlg>sha1</IpsecAuthAlg>
                  <IpsecPfs>group2</IpsecPfs>
                  <IpsecEncAlg>aes</IpsecEncAlg>
            </IpsecConfig>
            <Remote>116.XX.XX.69x</Remote>
            <LocalSubnet>172.16.2.0/24</LocalSubnet>
            <IkeConfig>
                  <IkeEncAlg>aes</IkeEncAlg>
                  <IkePfs>group2</IkePfs>
                  <RemoteId>116.XX.XX.69</RemoteId>
                  <IkeAuthAlg>sha1</IkeAuthAlg>
                  <Psk>pgw6dy7d1i8i****</Psk>
                  <IkeMode>main</IkeMode>
                  <IkeLifetime>86400</IkeLifetime>
                  <IkeVersion>ikev1</IkeVersion>
                  <LocalId>139.XX.XX.32</LocalId>
            </IkeConfig>
      </VpnConnectionConfig>
</DownloadVpnConnectionConfigResponse>
```

`JSON` format

```
{
    "RequestId": "0C68048B-0F70-40DA-B8AE-1B79B5CF62E3",
    "VpnConnectionConfig": {
        "RemoteSubnet": "10.10.1.0/24,10.10.2.0/24",
        "Local": "139.XX.XX.32",
        "IpsecConfig": {
            "IpsecLifetime": 86400,
            "IpsecAuthAlg": "sha1",
            "IpsecPfs": "group2",
            "IpsecEncAlg": "aes"
        },
        "Remote": "116.XX.XX.69",
        "LocalSubnet": "172.16.2.0/24",
        "IkeConfig": {
            "IkeEncAlg": "aes",
            "IkePfs": "group2",
            "RemoteId": "116.XX.XX.69",
            "IkeAuthAlg": "sha1",
            "Psk": "pgw6dy7d1i8i****",
            "IkeMode": "main",
            "IkeLifetime": 86400,
            "IkeVersion": "ikev1",
            "LocalId": "139.XX.XX.32"
        }
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.

17.1.7.6. DeleteVpnConnection

Deletes a specified IPsec-VPN connection.

> **Note** After an IPsec-VPN connection between a virtual private cloud (VPC) and a data center is deleted, the communication between the VPC and data center is interrupted.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpnConnection	The operation that you want to perform. Set the value to **DeleteVpnConnection**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the IPsec-VPN connection is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnConnectionId	String	Yes	vco-bp1bbi27hojx80nck****	The ID of the IPsec-VPN connection.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteVpnConnection
&RegionId=cn-qingdao-env66-d01
&VpnConnectionId=vco-bp1bbi27hojx80nck****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteVpnConnectionResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteVpnConnectionResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
404	InvalidVpnConnectionInstanceId.NotFound	The specified vpn connection instance id does not exist.	The error message returned because the specified IPsec-VPN connection does not exist. Check whether the ID of the IPsec-VPN connection is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.

17.1.8. SSL-VPN

17.1.8.1. CreateSslVpnServer

Creates an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSslVpnServer	The operation that you want to perform. Set the value to **CreateSslVpnServer**.
ClientIpPool	String	Yes	192.168.1.0/24	The CIDR block that is allocated to the virtual network interface of the client. It is not the CIDR block where the client resides. When the client accesses the server through an SSL-VPN connection, the VPN gateway selects an IP address from the specified CIDR block and assigns it to the client. This CIDR block must not conflict with the value of **LocalSubnet**.
LocalSubnet	String	Yes	10.0.0.0/8	The CIDR block to be accessed by the client through the SSL-VPN connection. You can set the value to the CIDR block of a VPC, a vSwitch, a data center that is connected to the VPC through an Express Connect circuit, or an Alibaba Cloud service, such as ApsaraDB RDS or OSS.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnGatewayId	String	Yes	vpn-bp1hgim8by0kc9nga****	The ID of the VPN gateway.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	sslvpnname	The name of the SSL-VPN server. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, but cannot start with `http://` or `https://`.
Proto	String	No	UDP	The protocol that is used by the SSL-VPN server. Valid values: • **TCP**: TCP. • **UDP** : UDP. This is the default value.
Cipher	String	No	AES-128-CBC	The encryption algorithm that is used in the SSL-VPN connection. Valid values: • **AES-128-CBC**: the AES-128-CBC algorithm. This is the default value. • **AES-192-CBC**: the AES-192-CBC algorithm. • **AES-256-CBC**: the AES-256-CBC algorithm. • **none**: If the parameter is set to this value, no encryption algorithm is used.
Port	Integer	No	1194	The port that is used by the SSL-VPN server. Default value: **1194**. The following ports cannot be used: **22, 2222, 22222, 9000, 9001, 9002, 7505, 80, 443, 53, 68, 123, 4510, 4560, 500, and 4500**.

Parameter	Type	Required	Example	Description
Compress	Boolean	No	false	Specifies whether to enable data compression. Valid values: • **true**: enables data compression. • **false**: disables data compression. This is the default value.

Response parameters

Parameter	Type	Example	Description
Name	String	test	The name of the SSL-VPN server.
RequestId	String	E98A9651-7098-40C7-8F85-C818D1EBBA85	The ID of the request.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSslVpnServer
&ClientIpPool=192.168.1.0/24
&LocalSubnet=10.0.0.0/8
&RegionId=cn-qingdao-env66-d01
&VpnGatewayId=vpn-bp1hgim8by0kc9nga****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSslVpnServerResponse>
      <RequestId>E98A9651-7098-40C7-8F85-C818D1EBBA85</RequestId>
      <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
      <Name>test</Name>
</CreateSslVpnServerResponse>
```

`JSON` format

```
{
    "RequestId": "E98A9651-7098-40C7-8F85-C818D1EBBA85",
    "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
    "Name": "test"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
400	InvalidName	The name is not valid	The error message returned because the format of the specified name is invalid.
404	InvalidVpnGatewayInstanceId.NotFound	The specified vpn gateway instance id does not exist.	The error message returned because the specified VPN gateway does not exist. Check whether the configuration of the VPN gateway is valid.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.8.2. ModifySslVpnServer

Modifies the configuration of an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySslVpnServer	The operation that you want to perform. Set the value to **ModifySslVpnServer**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	Yes	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	test	The name of the SSL-VPN server. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.
ClientIpPool	String	No	10.30.30.0/24	The client IP address pool.
LocalSubnet	String	No	10.20.20.0/24	The CIDR block of the VPC.
Proto	String	No	UDP	The protocol that is used by the SSL-VPN server. Valid values: • **TCP**: TCP • **UDP**: UDP. This is the default value.

Parameter	Type	Required	Example	Description
Cipher	String	No	AES-128-CBC	The encryption algorithm that is used in the SSL-VPN connection. Valid values: • **AES-128-CBC**: the AES-128-CBC algorithm. This is the default value. • **AES-192-CBC**: the AES-192-CBC algorithm. • **AES-256-CBC**: the AES-256-CBC algorithm. • **none**: If the parameter is set to this value, no encryption algorithm is used.
Port	Integer	No	1194	The port that is used by the SSL-VPN server. Default value: **1194**. The following ports cannot be used: **22, 2222, 22222, 9000, 9001, 9002, 7505, 80, 443, 53, 68, 123, 4510, 4560, 500, and 4500**.
Compress	Boolean	No	false	Specifies whether to enable data compression. Valid values: • **true**: enables data compression. • **false**: disables data compression. This is the default value.

Response parameters

Parameter	Type	Example	Description
Cipher	String	AES-128-CBC	The encryption algorithm.
ClientIpPool	String	10.30.30.0/24	The client IP address pool.
Compress	Boolean	false	Indicates whether data compression is enabled.
Connections	Integer	0	The total number of current connections.
CreateTime	Long	1492753580000	The time when the SSL-VPN server was created.

Parameter	Type	Example	Description
InternetIp	String	47.XX.XX.98	The public IP address.
LocalSubnet	String	10.20.20.0/24	The CIDR block of the VPC.
MaxConnections	Integer	5	The maximum number of connections.
Name	String	test	The name of the SSL-VPN server.
Port	Integer	1194	The port that is used by the SSL-VPN server.
Proto	String	UDP	The protocol that is used by the SSL-VPN server.
RegionId	String	cn-qingdao-env66-d01	The region ID of the SSL-VPN server.
RequestId	String	DF11D6F6-E35A-41C3-9B20-6FC8A901FE65	The ID of the request.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
VpnGatewayId	String	vpn-bp1q8bgx4xnkm2ogj****	The ID of the VPN gateway.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySslVpnServer
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-bp18q7hzj6largv4v****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySslVpnServerResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.30.30.0/24</CLientIpPool>
                  <LocalSubnet>10.20.20.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.98</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</ModifySslVpnServerResponse>
```

`JSON` format

```
{
    "PageNumber": "1",
    "TotalCount": "1",
    "PageSize": "10",
    "SslVpnServers": {
        "SslVpnServer": {
            "RegionId": "cn-qingdao-env66-d01",
            "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
            "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
            "Name": "test",
            "CLientIpPool": "10.30.30.0/24",
            "LocalSubnet": "10.20.20.0/24",
            "Proto": "UDP",
            "Port": "1194",
            "Cipher": "AES-128-CBC",
            "Compress": "true",
            "CreateTime": "1492753580000",
            "Connections": "0",
            "MaxConnections": "5",
            "InternetIp": "47.XX.XX.98"
        }
    },
    "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.8.3. DescribeSslVpnServers

Queries one or more SSL-VPN servers.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnServers	The operation that you want to perform. Set the value to **DescribeSslVpnServers**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN servers are created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	No	vss-bp15j3du13gq1dgey****	The ID of the SSL-VPN server.
VpnGatewayId	String	No	vpn-bp1on0xae9d771ggi****	The ID of the VPN gateway.
Name	String	No	test	The name of the SSL-VPN server.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned on each page.
RequestId	String	085CA5EA-1E76-43A8-981B-E0208DECA0CB	The ID of the request.
SslVpnServers	Array of SslVpnServer		The detailed information about the SSL-VPN servers.
SslVpnServer			
Cipher	String	AES-128-CBC	The encryption algorithm.

Parameter	Type	Example	Description
ClientIpPool	String	10.10.1.0/24	The client IP address pool.
Compress	Boolean	false	Indicates whether the transmitted data is compressed.
Connections	Integer	0	The total number of current connections.
CreateTime	Long	1544668844000	The timestamp generated when the SSL-VPN server was created.
InternetIp	String	47.XX.XX.167	The public IP address.
LocalSubnet	String	192.168.0.0/24	The CIDR block of the client.
MaxConnections	Integer	5	The maximum number of connections.
Name	String	test	The name of the SSL-VPN server.
Port	Integer	1194	The port that is used by the SSL-VPN server.
Proto	String	UDP	The protocol that is used by the SSL-VPN server.
RegionId	String	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created.
SslVpnServerId	String	vss-bp15j3du13gq1dgey****	The ID of the SSL-VPN server.
VpnGatewayId	String	vpn-bp1on0xae9d771ggi****	The ID of the VPN gateway.
TotalCount	Integer	1	The total number of entries returned.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnServers
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.10.10.0/24</CLientIpPool>
                  <LocalSubnet>10.10.20.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.167</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
    "PageNumber": "1",
    "TotalCount": "1",
    "PageSize": "10",
    "SslVpnServers": {
        "SslVpnServer": {
            "RegionId": "cn-qingdao-env66-d01",
            "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
            "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
            "Name": "test",
            "CLientIpPool": "10.10.10.0/24",
            "LocalSubnet": "10.10.20.0/24",
            "Proto": "UDP",
            "Port": "1194",
            "Cipher": "AES-128-CBC",
            "Compress": "true",
            "CreateTime": "1492753580000",
            "Connections": "0",
            "MaxConnections": "5",
            "InternetIp": "47.XX.XX.167"
        }
    },
    "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.8.4. DescribeVpnSslServerLogs

Queries the logs of an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpnSslServerLogs	The operation that you want to perform. Set the value to **DescribeVpnSslServerLogs**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created. You can call the `DescribeRegions` operation to query the most recent region list.
VpnSslServerId	String	Yes	vss-bp155e9yclsg1xgq4****	The name of the SSL-VPN server.
From	Integer	No	2018020201	The beginning of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. If the **From** parameter is set, you must set the **To** or **MinutePeriod** parameter.
To	Integer	No	2018020206	The end of the time range to query. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. If the **From** parameter is set, you must set the **To** or **MinutePeriod** parameter.
MinutePeriod	Integer	No	10	The cycle of the logs. If the **From** and **To** parameters are not set, you must set the **MinutePeriod** parameter.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
Count	Integer	10	The number of log entries.
Data	List	test	An array of log entries. Each item in the array indicates a log entry.
IsCompleted	Boolean	true	Indicates whether the log data is accurate. Valid values: • **true**: accurate • **false**: inaccurate
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	1	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeVpnSslServerLogs
&RegionId=cn-qingdao-env66-d01
&VpnSslServerId=vss-bp155e9yclsg1xgq4****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeVpnSslServerLogsResponse>
   <Data></Data>
   <PageNumber>1</PageNumber>
   <Count>0</Count>
   <PageSize>10</PageSize>
   <IsCompleted>true</IsCompleted>
   <RequestId>26641E42-66C7-4942-9FEC-F99213914F8F</RequestId>
</DescribeVpnSslServerLogsResponse>
```

`JSON` format

```
{
 "Data": {
  "Logs": []
 },
 "PageNumber": 1,
 "Count": 0,
 "PageSize": 10,
 "IsCompleted": true,
 "RequestId": "26641E42-66C7-4942-9FEC-F99213914F8F"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.8.5. DeleteSslVpnServer

Deletes an SSL-VPN server.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSslVpnServer	The operation that you want to perform. Set the value to **DeleteSslVpnServer**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN server is created. You can call the `DescribeRegions` operation to query the most recent region list.

Parameter	Type	Required	Example	Description
SslVpnServerId	String	Yes	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSslVpnServer
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-bp18q7hzj6largv4v****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSslVpnServerResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteSslVpnServerResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.

17.1.8.6. CreateSslVpnClientCert

Creates an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateSslVpnClientCert	The operation that you want to perform. Set the value to **CreateSslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the VPN gateway is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	Yes	vss-m5et0q3iy1qex328w****	The ID of the SSL-VPN server.

Parameter	Type	Required	Example	Description
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can only contain ASCII characters and cannot exceed 64 characters in length.
Name	String	No	SslVpnClientCert1	The name of the SSL-VPN client certificate. The name must be 2 to 128 characters in length, and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter, and cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
Name	String	SslVpnClientCert	The name of the SSL-VPN client certificate.
RequestId	String	079874CD-AEC1-43E6-AC03-ADD96B6E4907	The ID of the request.
SslVpnClientCertId	String	vsc-m5euof6s5jy8vs5kd****	The ID of the SSL-VPN client certificate.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnServerId=vss-m5et0q3iy1qex328w****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateSslVpnClientCertResponse>
      <SslVpnClientCertId>vsc-bp1n8wcf134yl0osr****</SslVpnClientCertId>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</CreateSslVpnClientCertResponse>
```

`JSON` format

```
{
    "SslVpnClientCertId": "vsc-bp1n8wcf134yl0osr****",
    "RequestId": "606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	Resource.QuotaFull	The quota of resource is full	The error message returned because the resource quota is reached.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.
400	VpnGateway.FinancialLocked	The specified service is financial locked.	The error message returned because the service is suspended due to overdue payments. Top up your account first.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

17.1.8.7. ModifySslVpnClientCert

Modifies the name of an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifySslVpnClientCert	The operation that you want to perform. Set the value to **ModifySslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp1n8wcf134yl0osrc****	The ID of the SSL-VPN client certificate.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that the token is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.
Name	String	No	cert2	The name of the SSL-VPN client certificate. The name must be 2 to 128 characters in length and can contain digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. However, the name cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
Name	String	cert2	The name of the SSL-VPN client certificate.

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.
SslVpnClientCertId	String	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifySslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp1n8wcf134yl0osrc****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifySslVpnClientCertResponse>
      <SslVpnClientCertId>vsc-bp1n8wcf134yl0osr****</SslVpnClientCertId>
      <Name>cert2</Name>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</ModifySslVpnClientCertResponse>
```

`JSON` format

```
{
    "SslVpnClientCertId": "vsc-bp1n8wcf134yl0osr****",
    "Name": "cert2",
    "RequestId": "606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.

HttpCode	Error code	Error message	Description
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	InvalidName	The name is not valid	The error message returned because the specified name is in an invalid format.

17.1.8.8. DescribeSslVpnClientCerts

Queries one or more SSL-VPN client certificates.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnClientCerts	The operation that you want to perform. Set the value to **DescribeSslVpnClientCerts**.
RegionId	String	Yes	cn-qingdao-env66-d01	The region ID of the SSL-VPN client certificates to be queried. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnServerId	String	No	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
SslVpnClientCertId	String	No	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
Name	String	No	cert1	The name of the SSL-VPN client certificate.
PageNumber	Integer	No	1	The number of the page to return. Default value: **1**.
PageSize	Integer	No	10	The number of entries to return on each page. Maximum value: **50**. Default value: **10**.

Response parameters

Parameter	Type	Example	Description
PageNumber	Integer	1	The page number of the returned page.
PageSize	Integer	10	The number of entries returned per page.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.
SslVpnClientCertKeys	Array of SslVpnClientCertKey		The detailed information about the queried SSL client certificates.
SslVpnClientCertKey			
CreateTime	Long	1492747187000	The timestamp generated when the SSL client certificate was created.
EndTime	Long	1494966335000	The time to be generated when the SSL client certificate expires.
Name	String	cert1	The name of the SSL-VPN client certificate.
RegionId	String	cn-qingdao-env66-d01	The region ID of the SSL-VPN client certificate.
SslVpnClientCertId	String	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
SslVpnServerId	String	vss-bp18q7hzj6largv4v****	The ID of the SSL-VPN server.
Status	String	normal	The status of the SSL-VPN client certificate. Valid values: • **expiring-soon**: The SSL-VPN client certificate expires in one week. • **normal**: The certificate is normal. • **expired**: The certificate has expired.
TotalCount	Integer	1	The number of returned entries.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnClientCerts
&RegionId=cn-qingdao-env66-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <PageNumber>1</PageNumber>
      <TotalCount>1</TotalCount>
      <PageSize>10</PageSize>
      <SslVpnServers>
            <SslVpnServer>
                  <RegionId>cn-qingdao-env66-d01</RegionId>
                  <SslVpnServerId>vss-bp18q7hzj6largv4v****</SslVpnServerId>
                  <VpnGatewayId>vpn-bp1q8bgx4xnkm2ogj****</VpnGatewayId>
                  <Name>test</Name>
                  <CLientIpPool>10.10.20.0/24</CLientIpPool>
                  <LocalSubnet>10.10.10.0/24</LocalSubnet>
                  <Proto>UDP</Proto>
                  <Port>1194</Port>
                  <Cipher>AES-128-CBC</Cipher>
                  <Compress>true</Compress>
                  <CreateTime>1492753580000</CreateTime>
                  <Connections>0</Connections>
                  <MaxConnections>5</MaxConnections>
                  <InternetIp>47.XX.XX.98</InternetIp>
            </SslVpnServer>
      </SslVpnServers>
      <RequestId>DF11D6F6-E35A-41C3-9B20-6FC8A901FE65</RequestId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
    "DescribeSslVpnServersResponse": {
        "PageNumber": "1",
        "TotalCount": "1",
        "PageSize": "10",
        "SslVpnServers": {
            "SslVpnServer": {
                "RegionId": "cn-qingdao-env66-d01",
                "SslVpnServerId": "vss-bp18q7hzj6largv4v****",
                "VpnGatewayId": "vpn-bp1q8bgx4xnkm2ogj****",
                "Name": "test",
                "CLientIpPool": "10.10.20.0/24",
                "LocalSubnet": "10.10.10.0/24",
                "Proto": "UDP",
                "Port": "1194",
                "Cipher": "AES-128-CBC",
                "Compress": "true",
                "CreateTime": "1492753580000",
                "Connections": "0",
                "MaxConnections": "5",
                "InternetIp": "47.XX.XX.98"
            }
        },
        "RequestId": "DF11D6F6-E35A-41C3-9B20-6FC8A901FE65"
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.8.9. DescribeSslVpnClientCert

Queries a specified SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSslVpnClientCert	The operation that you want to perform. Set the value to **DescribeSslVpnClientCert**.
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate that you want to query is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp17r58rjf5r1gjyr****	The ID of the SSL-VPN client certificate that you want to query.

Response parameters

Parameter	Type	Example	Description
CaCert	String	The CA certificate	The CA certificate.
ClientCert	String	The SSL-VPN client certificate	The SSL-VPN client certificate.
ClientConfig	String	The configuration of the client	The configuration of the client.
ClientKey	String	The key of the client	The key of the client.
CreateTime	Long	1552550980000	The timestamp generated when the SSL-VPN client certificate was created.
EndTime	Long	1647158980000	The timestamp to be generated when the SSL-VPN client certificate expires.
Name	String	abc	The name of the SSL-VPN client certificate.
RegionId	String	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created.
RequestId	String	5BE01CD7-5A50-472D-AC14-CA181C5C03BE	The ID of the request.

Parameter	Type	Example	Description
SslVpnClientCertId	String	vsc-bp13k5mp4tg8v3z9b****	The ID of the SSL-VPN client certificate.
SslVpnServerId	String	vss-bp155e9yclsg1xgq4****	The ID of the SSL-VPN server.
Status	String	normal	The status of the SSL-VPN client certificate. Valid values: • **expiring-soon**: The SSL-VPN client certificate expires in one week. • **normal**: The certificate is normal. • **expired**: The certificate has expired.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp17r58rjf5r1gjyr****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeSslVpnServersResponse>
      <Name>df</Name>
      <Status>normal</Status>
      <ClientConfig>****</ClientConfig>
      <ClientCert>****</ClientCert>
      <CreateTime>1552550980000</CreateTime>
      <RegionId>cn-qingdao-env66-d01</RegionId>
      <RequestId>49D54005-6E0E-4132-B305-F3A24DEDDDC9</RequestId>
      <EndTime>1647158980000</EndTime>
      <SslVpnClientCertId>vsc-bp13k5mp4tg8v3z9b****</SslVpnClientCertId>
      <ClientKey>****</ClientKey>
      <CaCert>****</CaCert>
      <SslVpnServerId>vss-bp155e9yclsg1xgq4****</SslVpnServerId>
</DescribeSslVpnServersResponse>
```

`JSON` format

```
{
 "Name": "df",
 "Status": "normal",
 "ClientConfig": "****",
 "ClientCert": "****",
 "CreateTime": 1552550980000,
 "RegionId": "cn-qingdao-env66-d01",
 "RequestId": "49D54005-6E0E-4132-B305-F3A24DEDDDC9",
 "EndTime": 1647158980000,
 "SslVpnClientCertId": "vsc-bp13k5mp4tg8v3z9b****",
 "ClientKey": "****",
 "CaCert": "****",
 "SslVpnServerId": "vss-bp155e9yclsg1xgq4****"
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.

17.1.8.10. DeleteSslVpnClientCert

Deletes an SSL-VPN client certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSslVpnClientCert	The operation that you want to perform. Set the value to **DeleteSslVpnClientCert**.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env66-d01	The ID of the region where the SSL-VPN client certificate is created. You can call the `DescribeRegions` operation to query the most recent region list.
SslVpnClientCertId	String	Yes	vsc-bp1n8wcf134yl0osr****	The ID of the SSL-VPN client certificate.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-0016e04115b	The client token that is used to ensure the idempotence of the request. You can use the client to generate a token, but you must make sure that it is unique among different requests. The token can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	606998F0-B94D-48FE-8316-ACA81BB230DA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DeleteSslVpnClientCert
&RegionId=cn-qingdao-env66-d01
&SslVpnClientCertId=vsc-bp1n8wcf134yl0osr****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DeleteSslVpnClientCertResponse>
      <RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteSslVpnClientCertResponse>
```

`JSON` format

```
{
  "RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden.SubUser	User not authorized to operate on the specified resource as your account is created by another user.	The error message returned because you are unauthorized to perform this operation on the specified resource. You can apply for the required permissions and try again.
403	Forbidden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. To acquire the required permissions, submit a ticket.
400	VpnGateway.Configuring	The specified service is configuring.	The error message returned because the operation is not allowed when the specified service is being configured. Try again later.

18.Elastic IP Address

18.1. Developer Guide

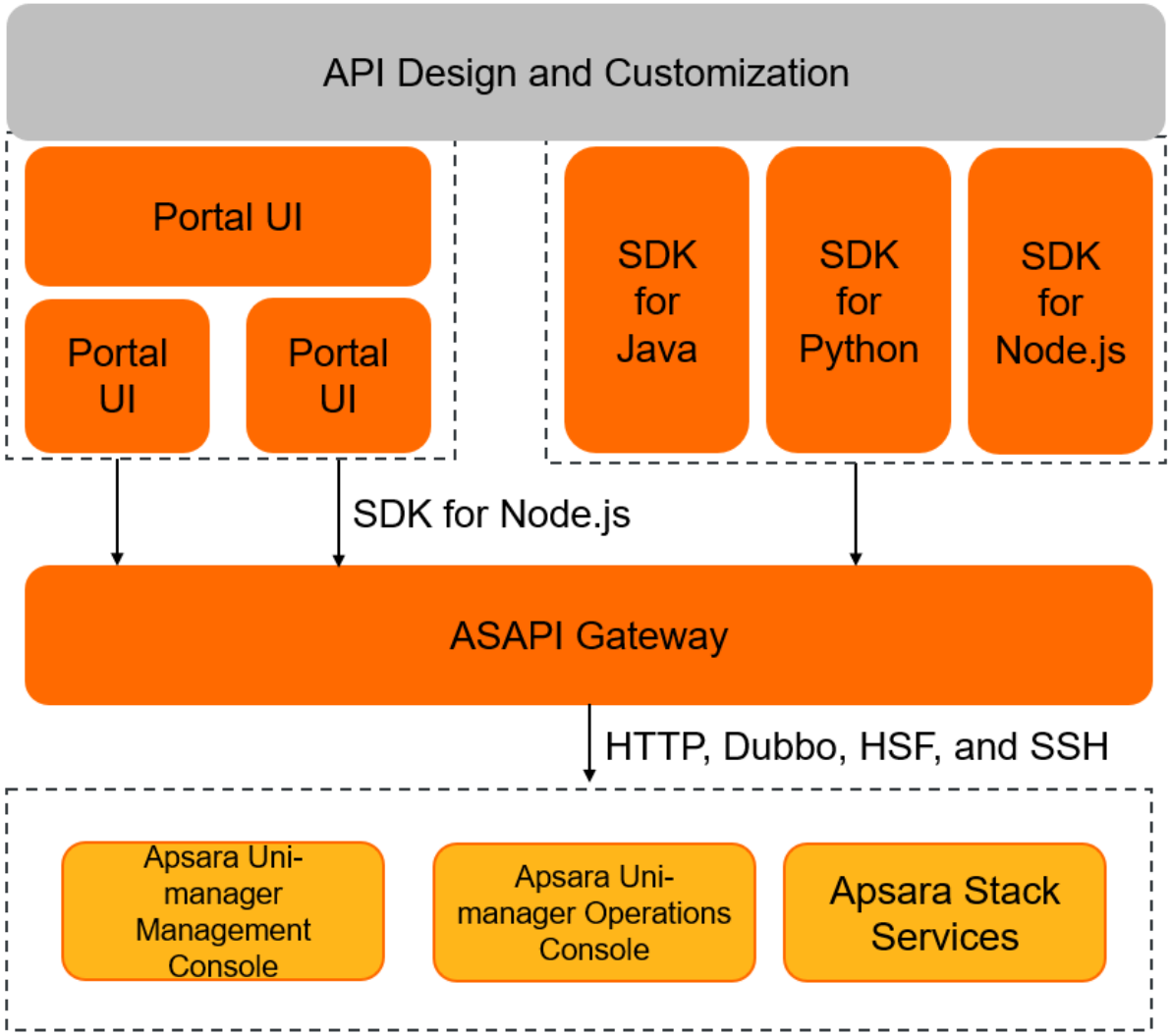
18.1.1. Make SDK calls by using ASAPI

18.1.1.1. 文档标题缺失，请补全后重新导出

18.1.1.1.1. ASAPI overview

This topic describes the architecture and features of the Apsara Stack API (ASAPI).

The ASAPI is a unified ingress gateway for Apsara Stack services and a main component of the Apsara Uni-manager Management Console. The ASAPI provides a unified method for you to manage and make API calls. You can use Apsara Stack SDK to centrally make API calls to Apsara Stack services, including Elastic Compute Service (ECS) and Virtual Private Cloud (VPC).



The ASAPI allows you to make API calls to manage and maintain Apsara Stack services.

- Make API calls to implement enterprise-grade management. For example, you can manage organizations, users, roles, resource sets, and logon policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage operations. For example, you can manage quotas, usage statistics, specifications, and password policies. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to manage resources. For example, you can create, delete, query, or modify cloud resources. These operations are provided by Apsara Stack services. If you call an API operation to create an ECS instance or a VPC, the API operation is provided by ECS or VPC.
- Make API calls to query monitoring metrics of Apsara Stack services. These operations are provided by the Apsara Uni-manager Management Console.
- Make API calls to perform O&M. For example, you can manage monitoring and alerting, inventories, tasks, and physical servers. These operations are provided by the Apsara Uni-manager Operations Console.

For more information, see the developer guide of the corresponding Apsara Stack service. For information about API operations used to manage organization users, see *Apsara Uni-manager Management Console Developer Guide*. For information about the API operation used to create an ECS instance, see *ECS Developer Guide*.

> **Note** If the "Use Apsara Stack SDK to make API calls" section is included in the developer guide of an Apsara Stack service, the ASAPI is supported by the Apsara Stack service. In this case, you can make API calls based on the developer guide.

18.1.1.1.2. Preparations

18.1.1.1.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

18.1.1.1.2.2. View information about API operations

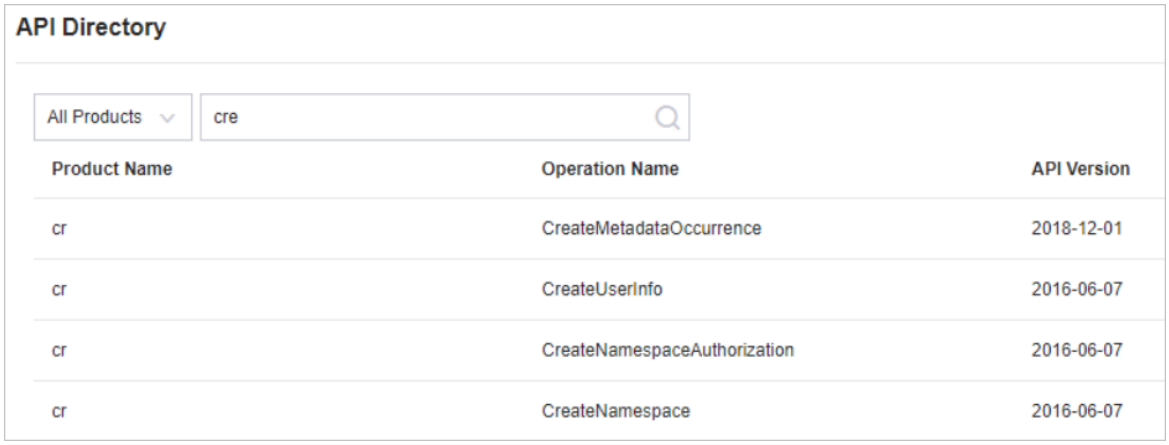
This topic describes how to view information about API operations. Before you use SDKs, obtain service names, API operation names, and API operation versions.

Context

The API operations on the API Directory page are only for reference. For information about how to call API operations, see developer guides of the corresponding cloud services. If the information on the API Directory page is inconsistent with that in the developer guide of the corresponding cloud service, the information in the developer guide prevails.

Procedure

1. Go to the API Tool console. For more information, see Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the desired service from the drop-down list, enter a keyword of an API operation name in the search box, and then click the search icon.



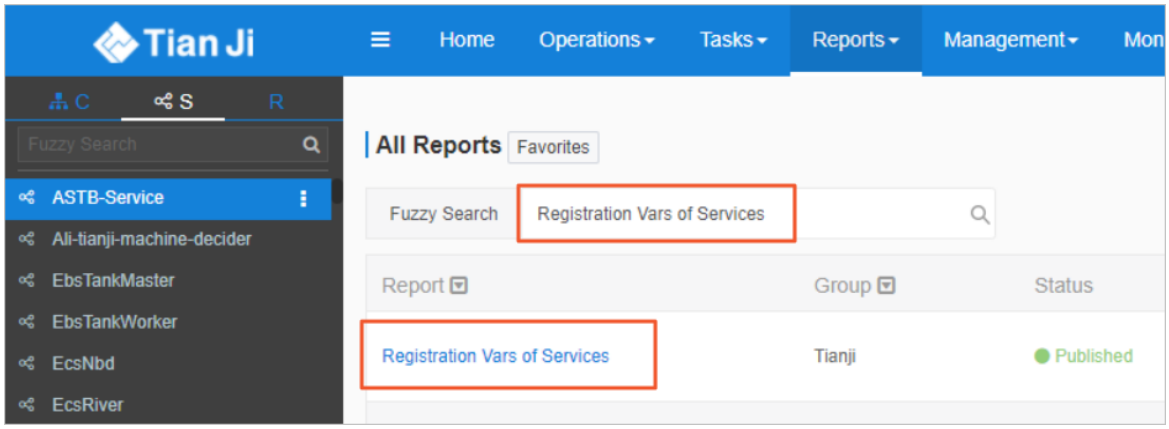
4. Then, you can view the service name, API operation name, and API operation version.

18.1.1.1.2.3. Generate an endpoint for the ASAPI

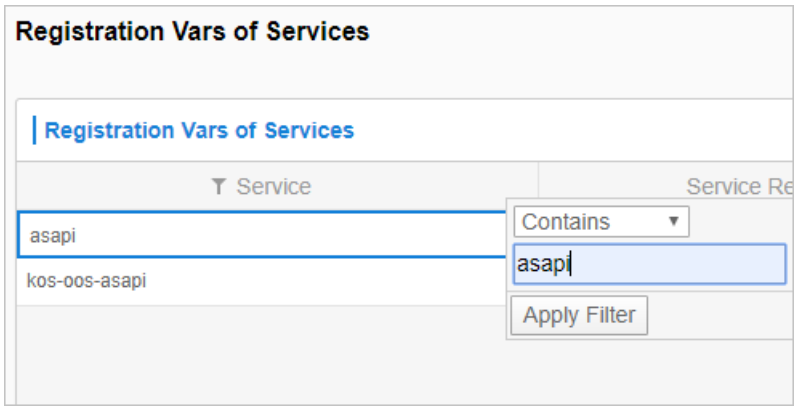
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.
6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.

ii. In the top navigation bar, click **O&M**.

iii. In the left-side navigation pane, choose **Product Management** > **Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

18.1.1.1.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

18.1.1.1.2.5. Obtain an AccessKey pair

An AccessKey pair that consists of an AccessKey ID and an AccessKey secret is used to implement symmetric encryption. This helps you verify the identity of a requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

An account of the operations administrator or the level-1 organization administrator is obtained. Only an operations administrator or a level-1 organization administrator can obtain an AccessKey pair.

Context

If you need to make API calls to the Apsara Uni-manager Management Console or other Apsara Stack services, we recommend that you use the AccessKey pair of a personal account. If you use the AccessKey pair of a personal account, configure the request headers that are described in the following table for access control. Otherwise, an error that indicates insufficient permissions can occur.

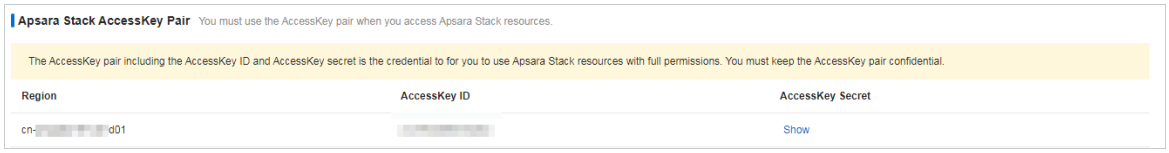
Parameter	Description
x-acs-regionid	The ID of the region, for example, cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console. For information about how to obtain an organization ID, see the "GetOrganizationList" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console. For information about how to obtain a resource set ID, see the "ListResourceGroup" section in Apsara Uni-manager Management Console Developer Guide.
x-acs-instanceid	The ID of the instance to which you make API calls. If you need to make API calls to an Elastic Compute Service (ECS) instance, obtain the ID of the ECS instance on the Instances page.

Warning The AccessKey pair of a personal account is managed and controlled by the permission system of the Apsara Uni-manage Management Console. If you need to obtain the AccessKey pair of an account that has permissions on an organization, make sure that your operation is allowed by an administrator. This ensures security. The account that has permissions on an organization is a privileged account.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, obtain the AccessKey pair.



> **Note** The AccessKey pair that consists of an AccessKey ID and an AccessKey secret is the credential for you to have full permissions on Apsara Stack resources. Keep your AccessKey pair confidential.

Obtain the AccessKey pair of an account that has permissions on an organization

To obtain the AccessKey pair of an account that has permissions on an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the Organizations navigation tree, click the name of the organization that you want to manage.
5. On the right side of the page, click **Obtain AccessKey Pair**.
6. In the message that appears, obtain the AccessKey pair of the account that has permissions on the organization.

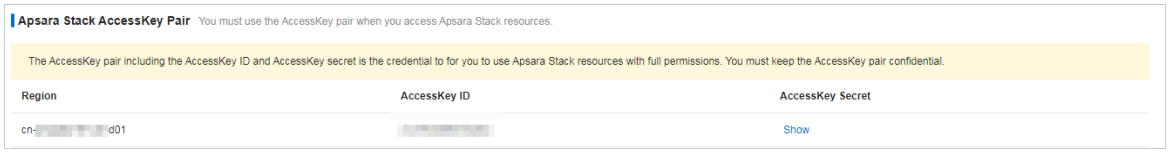
> **Note** The system automatically allocates an AccessKey pair to the account that has permissions on the level-1 organization. The same AccessKey pair is used by the accounts that have permissions on the subordinate organizations.

18.1.1.1.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



18.1.1.1.3. Common parameters

Common request parameters must be included in all API requests.

Sample common parameters

The following table describes the common parameters that are used when you call API operations supported by the Apsara Stack API (ASAPI).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The version of the API operation. For more information, see View information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query a region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the current request. For more information about how signatures are calculated, see Request signatures.

Parameter	Type	Required	Description
SignatureMethod	String	Yes	The encryption method of the signature string. Valid values: HMAC-SHA1 and HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Valid values: 1.0 and 2.0.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Sample value: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

Note

The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into Apsara Stack SDK. You do not need to configure these parameters.

18.1.1.1.4. SDK description

18.1.1.1.4.1. Use Apsara Stack SDK for Java to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Java to call API operations.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- Apsara Stack SDK for Java 1.8 or later is installed.

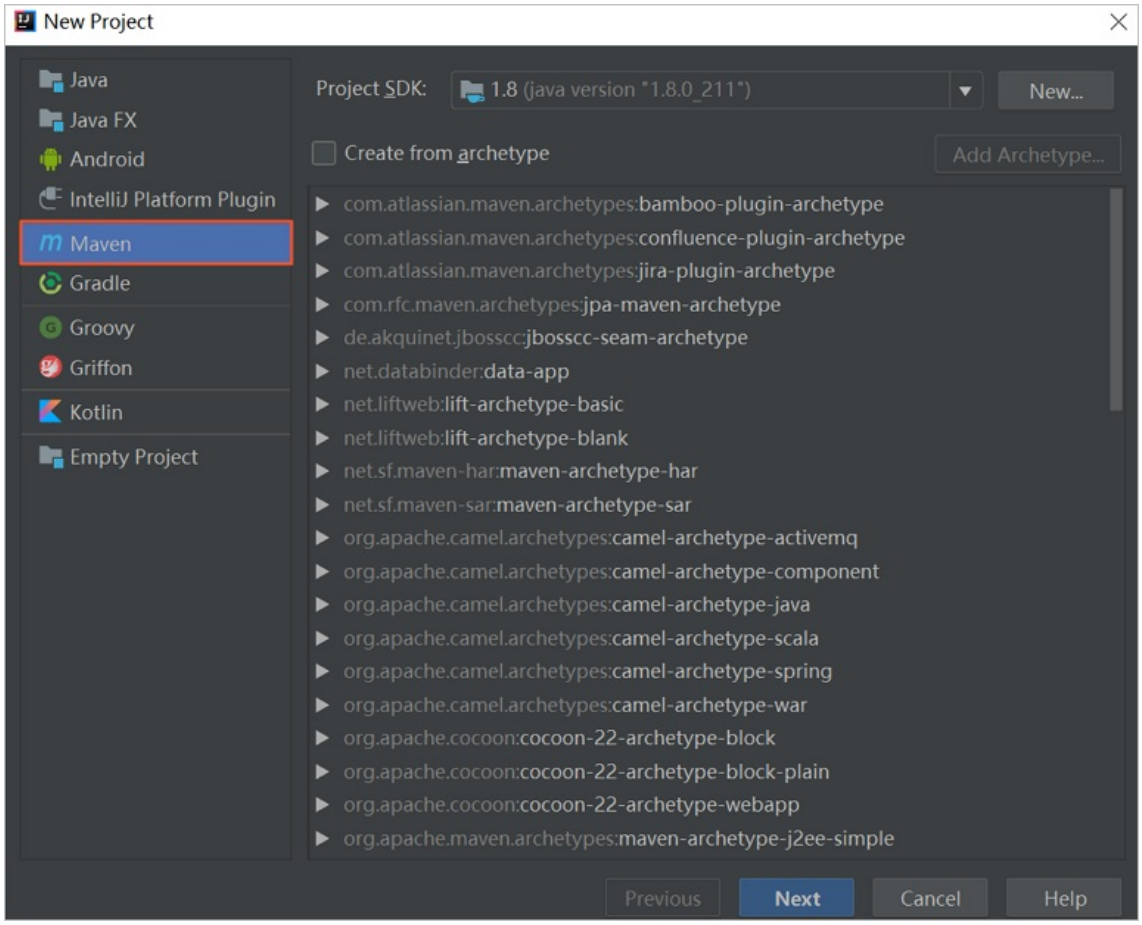
Background information

The help center of Apsara Stack provides Maven dependencies and JAR files for Apsara Stack SDK for Java. You can write code to use Apsara Stack SDK for Java to call API operations.

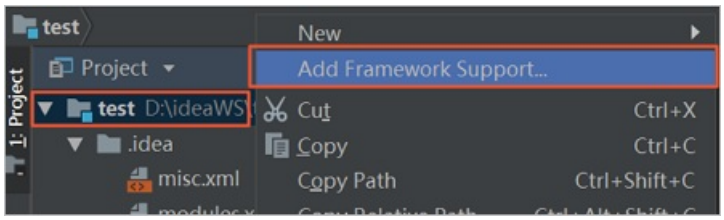
In this example, the Windows 10 64-bit OS and IntelliJ IDEA are used.

Procedure

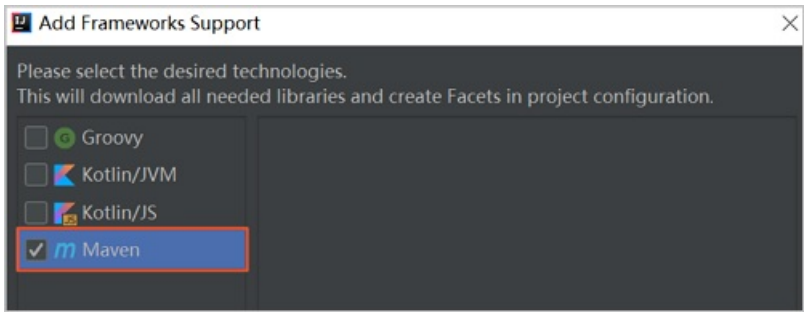
1. Use one of the following methods to configure Maven in IntelliJ IDEA. Maven is a tool used for project management.
   - Use Maven that is integrated in IntelliJ IDEA.
   - Download Maven based on the OS that you are using from the official website and configure Maven. For more information, see Download Maven.
2. Obtain the Maven dependencies for Apsara Stack SDK for Java from the official website. For more information about how to obtain the dependencies, see Obtain the core package for ASAPI.
3. Use one of the following methods to create a Maven project:
   - Method 1: Create a Maven project in IntelliJ IDEA.



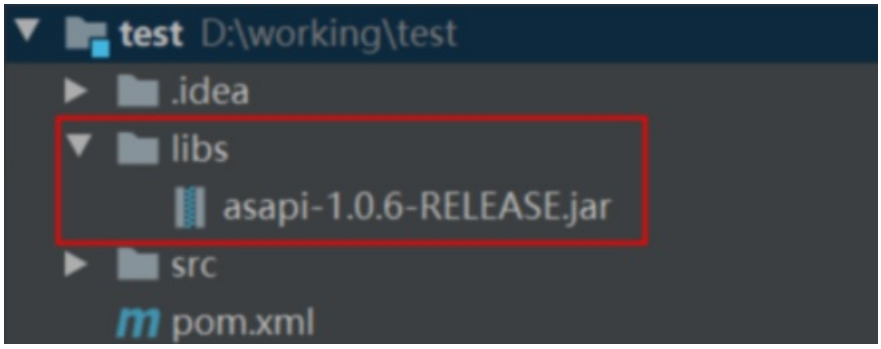
- Method 2: Convert an existing project to a Maven project.
  a. Right-click the project that you want to convert and select **Add Framework Support...**.



  b. Select **Maven** and click **OK**.



4. Create a folder named libs in the root directory of the project. Then, add the JAR file of Apsara Stack SDK for Java to the libs folder, as shown in the following figure.



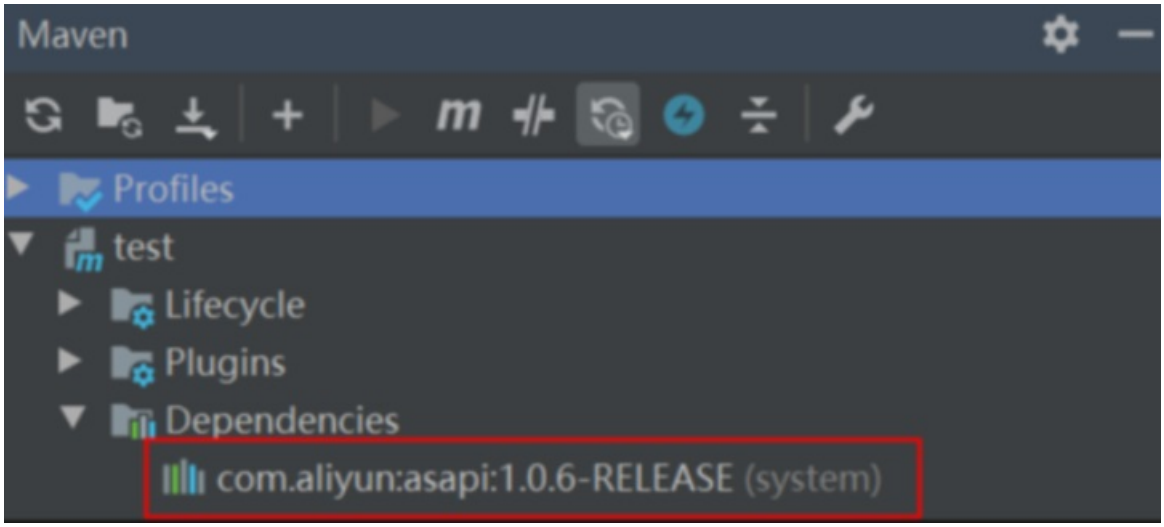
5. Add the dependencies of Apsara Stack SDK for Java to the pom.xml file in the project directory.

```
<dependencies>
    <dependency>
        <groupId>com.aliyun</groupId>
        <artifactId>asapi</artifactId>
        <version>1.0.6-RELEASE</version>
        <scope>system</scope>
        <systemPath>${project.basedir}/libs/asapi-1.0.6-RELEASE.jar</systemPath>
    </dependency>
  <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>alicrypto-java-aliyun</artifactId>
    <version>1.0.4</version>
    <systemPath>${project.basedir}/libs/alicrypto-java-aliyun-1.0.4.jar</systemPath>
  </dependency>
  <dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>gmsse</artifactId>
    <version>1.1.0</version>
    <systemPath>${project.basedir}/libs/gmsse-1.1.0.jar</systemPath>
  </dependency>
</dependencies>
```

> **Note** Replace `1.0.6-RELEASE` with the actual version of Apsara Stack SDK for Java.

6. On the right side of IntelliJ IDEA, view information in the Maven section.

If the information in the following figure appears, the dependencies are added.



Use Apsara Stack SDK for Java

You can use the GET or POST method to call API operations provided by the ASAPI. The following sample code shows how to call API operations:

```
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient();
// 2. Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
client.setSdkSource("<The identifier of the requester>");
Map<String, Object> parameters = new HashMap<String, Object>();
// 3. Configure the parameters for authorization. The parameter values vary based on your e
nvironment.
// The AccessKey ID of your Apsara Stack tenant account.
parameters.put("AccessKeyId","<AccessKey ID>");
// The AccessKey secret of your Apsara Stack tenant account.
parameters.put("AccessKeySecret", "<AccessKey Secret>");
// The ID of the region.
parameters.put("RegionId", "<your RegionID>");
// 4. Configure parameters for an API call. In this example, the Product, Action, and Versi
on parameters are configured.
parameters.put("Product", "<The name of the service>");
parameters.put("Action", "<The name of the API operation>");
parameters.put("Version", "<The version of the API operation>");
// 5. Configure operation-specific parameters.
parameters.put("<The name of the operation-specific parameter>", "<The value of the operati
on-specific parameter>");
// 6. Configure request headers and the encryption method for the signature string. Valid v
alues of the SignatureMethod parameter: HMAC-SHA1 and HMAC-SHA256. By default, HMAC-SHA256
is used.
Map<String, String> headers = new HashMap<String, String>();
//headers.put("SignatureMethod", "HMAC-SHA1");
headers.put("x-acs-regionid", "<your-regionid>");
headers.put("x-acs-resourcegroupid", "<your-resourcegroupid>");
headers.put("x-acs-organizationid", "<your-organizationid>");
headers.put("x-acs-instanceid", "<your-instanceid>");
// 7. Make an API call. We recommend that you use the doPost() method.
// Configure the time-out period for a connection.
//client.setConnectTimeout(10000);
// Configure the time-out period for a request.
// client.setSocketTimeout(10000);
String result = client.doPost(endpoint, headers, parameters);
System.out.println(result);
```

Configure a proxy

If you need to use a proxy to make API calls, use the following sample code to configure the proxy:

```
Cloud cloud = new Cloud();
// Configure the IP address of the proxy.
cloud.setConfig("proxy_host", "<IP>");
// Configure the port used by the proxy.
cloud.setConfig("proxy_port", "<Port>");
// 1. Create a connection to an ASClient object.
ASClient client = new ASClient(cloud);
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.

18.1.1.1.4.2. Use Apsara Stack SDK for Python to call API operations

This topic describes how to use Apsara Stack SDK for Python to call API operations provided by the Apsara Stack API (ASAPI).

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the ASAPI is obtained. For more information, see Generate an endpoint for the ASAPI.

Install Apsara Stack SDK for Python

1. Download the required version of Apsara Stack SDK for Python. For more information, see Obtain Apsara Stack SDKs.
2. Upload the compressed file of Apsara Stack SDK for Python to the host from which you want to send API requests and extract the file. Then, run the following code in the directory of the extracted files to install Apsara Stack SDK for Python:

```
# Install Apsara Stack SDK for Python 2.x.
pip install aliyun-python2-sdk-asapi-2.4.7.tar.gz
# Install Apsara Stack SDK for Python 3.x.
pip3 install aliyun-python3-sdk-asapi-2.4.7.tar.gz
```

> **Note**
>
> Replace `2.4.7` with the actual version of Apsara Stack SDK for Python.

Sample requests

You can use the GET or POST method to call API operations provided by the ASAPI.

```
    # 1. Import dependencies.
    from aliyunsdkasapi.ASClient import ASClient
    from aliyunsdkasapi.AsapiRequest import AsapiRequest

    if __name__ == '__main__':
     # 2. Create a request. The Product parameter specifies the name of the service. The Ver
sion parameter specifies the version of the API operation. The Action parameter specifies t
he operation that you want to perform. The asapi-endpoint parameter specifies the endpoint
of the ASAPI.
     req = AsapiRequest("<Product>", "<Version>", "<Action>", "<asapi-endpoint>")
     # 3. Configure operation-specific parameters.
     req.add_body_params("<key>", "<value>")
     # 4. Configure request headers.
     req.add_header("x-acs-resourcegroupid", "<your-resourcegroupid>");
     req.add_header("x-acs-organizationid", "<your-organizationid>");
     req.add_header("x-acs-regionid", "<your-regionid>");
     req.add_header("x-acs-instanceid", "<your-instanceid>");
     # 5. Configure a request method.
     req.set_method("POST")
     # 6. Configure initialization parameters for an ASClient object. The parameter values v
ary based on your environment. The timeout parameter specifies the time-out period for a re
quest. The cert_file parameter specifies the certificate. The verify parameter specifies wh
ether to verify the certificate.
     as_client = ASClient("<accesskeyid>", "<accesskeysecret>", "<regionid>",timeout=1000,
             cert_file=None,
             verify=False)
     # Configure the identifier of the requester. This parameter is required and used only f
or identification. You can set this parameter to a random value.
     as_client.setSdkSource("<The identifier of the requester>")
     response = as_client.do_request(req)
     print(response)
```

Request headers

Parameter	Description
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query a region ID.
x-acs-instanceid	The ID of the instance to which you make API calls.

Configure a proxy

Perform the following steps to configure a proxy:

1. Import OS dependencies.

```
import os
```

2. Configure one or more proxies.

```
# Before you make an API call, configure one or more proxies.
os.environ['http_proxy'] = "http://x.x.x.x:xxxx"
os.environ['https_proxy'] = "https://x.x.x.x:xxxx"
```

18.1.1.1.4.3. Use Apsara Stack SDK for Node.js to call API operations

This topic describes how to obtain and use Apsara Stack SDK for Node.js to call API operations.

Preparations

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain an AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of the Apsara Stack API (ASAPI) is obtained. For more information, see Generate an endpoint for the ASAPI.
- A region ID is obtained. For more information about how to obtain a region ID, see Query the region ID.

Add dependencies

Run the following command to install Apsara Stack SDK for Node.js:

```
tnpm install --save @ali/asapi-nodejs-sdk
```

Use Apsara Stack SDK for Node.js

The following sample code shows how to use Apsara Stack SDK for Node.js to make API calls:

```
// 1. Import the dependencies of Apsara Stack SDK for Node.js.
const Controller = require('egg').Controller;
const ASAPIClient = require('@ali/asapi-nodejs-sdk');
// 2. Configure the parameters.
const cnofig = {
    API_GATEWAY: '<The endpoint of the ASAPI>',
    regionId: '<The ID of the region in which the Apsara Stack service is deployed>',
    accessKeyId: '<The AccessKey ID of your Apsara Stack tenant account>',
    accessKeySecret: '<The AccessKey secret of your Apsara Stack tenant account>'
};
// 3. Initialize a client for API calls.
const AsapiClient = new ASAPIClient(cnofig, this.ctx);
// 4. Configure request parameters.
const params = {
    "Action": "<The name of the API operation>",
    "Product": "<The name of the service that provides the API operation>",
    "Version": "<The version of the API operation>",
    "regionId": '<The ID of the region in which the Apsara Stack service is deployed>',
      "<The name of the operation-specific parameter required by the API operation>": "<The
value of the operation-specific parameter>"
}
// 5. Configure request headers.
AsapiClient.addHeader('x-acs-caller-sdk-source', '<The identifier of the requester>')
AsapiClient.addHeader('x-acs-roleid', '<The ID of the role>')
AsapiClient.addHeader('x-acs-userid', '<The ID of the user>')
AsapiClient.addHeader('x-acs-organizationid', '<your-organizationid>')
AsapiClient.addHeadert("x-acs-regionid", "<your-regionid>");
AsapiClient.addHeader("x-acs-resourcegroupid", "<your-resourcegroupid>");
AsapiClient.addHeader("x-acs-instanceid", "<your-instanceid>");
// 6. Make an API call and obtain the response.
try {
  const res = await AsapiClient.doRequest(cnofig.API_GATEWAY, params, {
    method: 'POST', // The request method.
    formatParams: false, // Specifies whether to format parameters and capitalize the first
letter of each parameter.
    enableProxy: true, // Specifies whether to configure a proxy.
    proxy: 'http://x.x.x.x:xxxx',
    timeout: 10000, // The time-out period.
  // ca: , // The certificate issued by a certificate authority (CA). For more information,
visit https://nodejs.org/api/https.html#https_https_request_options_callback.
  })
  console.log(res)
} catch (e) {
  console.log(e)
}
```

Disable certificate validation

The following sample code shows how to disable certificate validation:

```
Configure the environment variable.
NODE_TLS_REJECT_UNAUTHORIZED=0
```

Request headers

Parameter	Description
x-acs-regionid	The ID of the region. For more information about how to obtain a region ID, see Query the region ID.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance to which you make API calls.
x-acs-caller-sdk-source	The custom name of the requester or the system. This parameter is used to identify the source of the API request.
x-acs-roleid	The ID of the role.
x-acs-userid	The ID of the user.

18.1.1.1.4.4. SDK for POP

SDK for Java

Before you use Apsara Stack API (ASAPI) SDK for POP for Java to access ASAPI, you must know the remote procedure call (RPC) and resource-oriented architecture (ROA) styles that are supported for API calls. ASAPI is compatible with both styles. Their difference lies in the ASAPI endpoints that are used for API calls.

Prerequisites

- An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.
- SSL certificate validation is ignored for requests over HTTPS.

Background information

ASAPI supports only the HTTPS request protocol.

Difference between two styles

When you use the RPC or ROA style to make API calls, take note that the two styles use different ASAPI endpoints.

```
# ASAPI endpoint for the RPC style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3
# ASAPI endpoint for the ROA style:
public.asapi.<global:region>.<global:internet-domain>/asapi/v3/roa
```

Call examples

The following sample code provides an example on how to use the RPC style to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package com.aliyuns.client.pop.ecs;

import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesRequest;
import com.aliyuncs.ecs.model.v20140526.DescribeInstancesResponse;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

import java.util.List;

public class DescribeInstancesTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3";
        // Specify the region where the ECS service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "ECS";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        try {
            DefaultProfile clientProfile = DefaultProfile.getProfile(region, ak, sk);
            // Ignore SSL certificate validation.
            HttpClientConfig clientConfig = HttpClientConfig.getDefault();
            clientConfig.setIgnoreSSLCerts(true);
            // Set the connection timeout period.
            clientConfig.setConnectionTimeoutMillis(3000L);
            // Set the read timeout period.
            clientConfig.setReadTimeoutMillis(10000L);
            clientProfile.setHttpClientConfig(clientConfig);
            // Create a connection.
            DefaultAcsClient acsClient = new DefaultAcsClient(clientProfile);
            // Create a request.
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            // Specify the endpoint of ASAPI.
            request.setSysEndpoint(endpoint);
            // Specify the name of the service that you want to access and the region where
the service resides.
            request.setSysLocationProduct(product);
            request.setSysRegionId(region);
            // Set the request protocol to HTTPS.
            request.setSysProtocol(ProtocolType.HTTPS);
            DescribeInstancesResponse result =  acsClient.getAcsResponse(request);
            List<DescribeInstancesResponse.Instance> instances = result.getInstances();
            for (DescribeInstancesResponse.Instance instance: instances) {
                System.out.println(instance.getInstanceId());
                System.out.println(instance.getInstanceName());
```

```
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

The following sample code provides an example on how to use the ROA style to make an API call. In this example, the GetNamespaceList operation of Container Registry is called, and the API version is 2016-06-07.

Sample code:

```
package com.aliyuns.client.pop.cr;

import com.aliyuncs.CommonRequest;
import com.aliyuncs.CommonResponse;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.http.FormatType;
import com.aliyuncs.http.HttpClientConfig;
import com.aliyuncs.http.MethodType;
import com.aliyuncs.http.ProtocolType;
import com.aliyuncs.profile.DefaultProfile;

public class GetNamespaceListTest {
    public static void main(String[] args) {
        // Specify the endpoint of ASAPI.
        String endpoint = "public.asapi.<global:region>.<global:internet-domain>/asapi/v3/r
oa";
        // Specify the region where the Container Registry service resides.
        String region = "<global:region>";
        // Specify the name of the service that you want to access.
        String product = "cr";
        // Specify your AccessKey pair.
        String ak = "<accessKeyId>";
        String sk = "<accessKeySecret>";
        DefaultProfile profile = DefaultProfile.getProfile(region, ak, sk);
        // Ignore SSL certificate validation.
        HttpClientConfig clientConfig = HttpClientConfig.getDefault();
        clientConfig.setIgnoreSSLCerts(true);
        // Set the connection timeout period.
        clientConfig.setConnectionTimeoutMillis(3000L);
        // Set the read timeout period.
        clientConfig.setReadTimeoutMillis(10000L);
        profile.setHttpClientConfig(clientConfig);
        // Create a connection for the client.
        IAcsClient client = new DefaultAcsClient(profile);
        // Create a request.
        CommonRequest request = new CommonRequest();
        // Set the request protocol to HTTPS.
```

```
        request.setSysProtocol(ProtocolType.HTTPS);
        // Specify the request method.
        request.setSysMethod(MethodType.GET);
        // Specify the endpoint of ASAPI.
        request.setSysDomain(endpoint);
        // Specify the version of the API.
        request.setSysVersion("2016-06-07");
        // Specify the pattern of the uniform resource identifier (URI).
        request.setSysUriPattern("/namespace");
        // Specify the name of the service that you want to access and the region where the
service resides.
        request.setSysLocationProduct(product);

        request.putHeadParameter("Content-Type", "application/json");
        String requestBody = "" +
                "{}";
        request.setHttpContent(requestBody.getBytes(), "utf-8", FormatType.JSON);
        try {
            CommonResponse response = client.getCommonResponse(request);
            System.out.println(response.getData());
        } catch (ServerException e) {
            e.printStackTrace();
        } catch (ClientException e) {
            e.printStackTrace();
        }
    }
}
```

> **Notice**
>
> If you send a request over HTTPS, you must enable the request to ignore SSL certificate validation.

SDK for Go

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Go.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
package main
```

```
import (
 "fmt"
 "time"

 "github.com/aliyun/alibaba-cloud-sdk-go/sdk"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/auth/credentials"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
 "github.com/aliyun/alibaba-cloud-sdk-go/sdk/responses"
)

func getSdkConfig() *sdk.Config {
 return sdk.NewConfig().
  WithTimeout(time.Duration(30) * time.Second).
  WithEnableAsync(true).
  WithGoRoutinePoolSize(100).
  WithMaxTaskQueueSize(10000).
  WithDebug(false).
  WithScheme("HTTP")
}

func main(){
 ak := "<The AccessKey ID of your Apsara Stack tenant account.>"
 sk := "<The AccessKey secret of your Apsara Stack tenant account.>"
 regionId := "<The region where the ECS service resides.>"
 endpoint := "<The endpoint of ASAPI.>" // No network protocol.
 request := requests.NewCommonRequest()
  request.SetReadTimeout(10 * time.Second) // Set the read timeout period of the request to
10 seconds.
  request.SetConnectTimeout(5 * time.Second)  // Set the connection timeout period of the r
equest to 5 seconds.
 request.Method = requests.GET
 request.Domain = endpoint         // Location Service will not be enabled if the host is s
pecified. For example, the service with a certification type-bearer token must be specified
.
 request.Version = "2014-05-26"            // Specify the version of the API.
 request.Scheme = "https"                // Specify the request protocol. Default value: ht
tp.
 request.ApiName = "DescribeInstances"
 request.QueryParams["Product"] = "Ecs"  // Specify the name of the service that you want t
o access.
 request.TransToAcsRequest()
 client, err := sdk.NewClientWithOptions(regionId,getSdkConfig(),credentials.NewAccessKeyCr
edential(ak,sk))
 // If relevant parameters are not set for the request, the client settings are used.
  //client.SetReadTimeout(10 * time.Second)              // Set the read timeout period of
the client to 10 seconds.
 //client.SetConnectTimeout(5 * time.Second)            // Set the connection timeout perio
d of the client to 5 seconds.
  resp := responses.BaseResponse{}
  err = client.DoAction(request, &resp)
    if err != nil {
        panic(err)
    }
 fmt.Print(endpoint)
```

```
}
```

Configure proxies

You can configure proxies in one of the following ways:

- Configure proxies by using environment variables.

  Set the HTTP_PROXY and HTTPS_PROXY environment variables, or set the NO_PROXY environment variable.

  Sample code:

```
import (
    "os"
)
func main(){
 os.Setenv("HTTP_PROXY", "http://x.x.x.x:xxxx") // Set the HTTP_PROXY environment variabl
e.
 os.Setenv("HTTPS_PROXY", "https://x.x.x.x:xxxx") // Set the HTTPS_PROXY environment vari
able.
}
```

- Configure proxies on the client.

  Sample code:

```
// The proxies that are configured on the client take precedence over those that are conf
igured by using environment variables.
client.SetHttpProxy("http://x.x.x.x:xxxx")   // Configure the HTTP proxy.
client.GetHttpProxy()                          // Query the HTTP proxy.

client.SetHttpsProxy("https://x.x.x.x:xxxx")   // Configure the HTTPS proxy.
client.GetHttpsProxy()                           // Query the HTTPS proxy.

client.SetNoProxy("127.0.0.1,localhost")     // Configure the proxy whitelist.
client.GetNoProxy()                          // Query the proxy whitelist.
```

SDK for Python

This topic describes how to use Apsara Stack API (ASAPI) SDK for POP for Python.

Prerequisites

An Alibaba Cloud SDK package is downloaded for the service that you want to access. The required dependencies are installed.

Background information

Only the remote procedure call (RPC) style is supported for API calls.

Call examples

The following sample code provides an example on how to make an API call. In this example, the DescribeInstances operation of Elastic Compute Service (ECS) is called, and the API version is 2014-05-26.

Sample code:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
import os

# Create an AcsClient instance.
client = AcsClient(
   "<your-access-key-id>",
   "<your-access-key-secret>",
   "<your-region-id>",

   timeout=1000,  # Set the timeout period.
    verify=False, # Ignore certificate validation. or verify='<The location where the certi
ficate is stored.>'
);
# Set the following parameters for the HTTPS request protocol:
# client.set_verify(False)
# os.environ["HTTPS_PROXY"] = "http://127.0.0.1:8080"

# os.environ["HTTP_PROXY"] = "http://127.0.0.1:8080"
def hello_ecs_instance():
    # Create a request and set the parameters.
    request = DescribeInstancesRequest.DescribeInstancesRequest()

    params = {"PageNumber":"1", "Product":"Ecs","Version": "2014-05-26","Action": "Describe
Instances"};
    request.set_body_params(params)
    # The endpoint that contains no network protocol is in the following format: ASAPI doma
in name/asapi/v3.
    request.set_endpoint('<The endpoint of ASAPI.>')
    # Set the following parameter if the endpoint contains no network protocol:
    request.set_protocol_type("https")

    request.set_PageSize(10)
    # Initiate the API request and obtain the response.
    response = client.do_action_with_exception(request)
    print(response)


if __name__ == '__main__':
    print("Hello Aliyun OpenApi!")
    hello_ecs_instance()
```

Configure proxies

Set the HTTP_PROXY and HTTPS_PROXY environment variables.

Sample code:

```
# Configure the HTTPS proxy.
os.environ["HTTPS_PROXY"] = "http://x.x.x.x:xxxx"

# Configure the HTTP proxy.
os.environ["HTTP_PROXY"] = "https://x.x.x.x:xxxx"
```

18.1.1.1.5. HTTP requests

18.1.1.1.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

18.1.1.1.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https`: the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3`: the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10`: the API operation to call.
- `Id`: the ID of the organization.
- `<Common parameters>`: the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

18.1.1.1.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .

- Extended UTF-8 characters are encoded in the `%XY%ZA...` format.
- Spaces must be encoded as `%20`. Do not encode spaces as plus signs (`+`).

  This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

  If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign` .

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=` . Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").r
eplace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

18.1.1.1.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
 {
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

18.1.2. API reference

18.1.2.1. List of operations by function

The following table describes API operations available for use in Elastic IP Address (EIP).

API	Description
AllocateEipAddress	Applies for an EIP.

API	Description
AllocateEipAddressPro	Applies for a specified EIP.
AssociateEipAddress	Associates an EIP with a cloud resource.
ModifyEipAddressAttribute	Modifies the name, description, and bandwidth limit of a specified EIP.
UnassociateEipAddress	Disassociates an EIP from a cloud resource.
ReleaseEipAddress	Releases a specified EIP.
DescribeEipGatewayInfo	Queries the gateway and subnet mask information about a specified EIP.

18.1.2.2. Make API requests

18.1.2.2.1. Request syntax

To call an Elastic IP Address (EIP) API operation, you must send an HTTP GET request to the endpoint of the EIP API. You must add the request parameters that correspond to the API operation being called. After you call the API operation, the system returns a response. The request and response are encoded in UTF-8.

EIP API operations use the RPC protocol. You can call EIP API operations by sending HTTP GET requests.

The request syntax is:

```
http://Endpoint/?Action=xx&Parameters
```

where:

- Endpoint: the endpoint of the API. The endpoint of the EIP API is `vpc.example.com`.

  > **Note** `example.com` is a custom domain name. You can obtain the endpoint in the Apsara Uni-manager Operations Console. For more information, see Generate the ASAPI endpoint.

- Action: the name of the operation that you want to perform. For example, to query EIPs, you must set the Action parameter to DescribeEipAddresses.
- Version: the version of the API that you want to call. The current EIP API version is *2016-04-28*.
- Parameters: the request parameters for the operation. Separate multiple parameters with ampersands (&).

  Request parameters include common parameters and operation-specific parameters. Common parameters include the API version and authentication information. For more information, see Common parameters.

The following example describes how to call the DescribeEipAddresses operation to query EIPs.

> **Note** The sample requests are formatted to improve readability.

```
https://vpc.example.com/?Action=DescribeEipAddresses
&Format=xml
&Version=2016-04-28
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

18.1.2.2.2. API authorization

To ensure the security of your account, we recommend that you call EIP API operations as a RAM user. To call the EIP API as a RAM user, you must create and add an authorization policy that grants permissions to call specific API operations.

For more information about the EIP resources and API operations that allow the authorization, see RAM authentication.

18.1.2.2.3. Request signatures

You must sign all API requests to ensure security. Apsara Stack uses the request signature to verify the identity of the API caller.

Elastic IP Address (EIP) implements symmetric encryption with an AccessKey pair to verify the identity of the request sender. An AccessKey pair is an identity credential issued to Apsara Stack tenant accounts and RAM users. An AccessKey pair is similar to a logon username and password. An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey ID is used to verify the identity of the user, while the AccessKey secret is used to encrypt and verify the signature string. You must keep your AccessKey secret strictly confidential. For more information about how to obtain an AccessKey pair, see Obtain an AccessKey pair.

You must add the signature to the EIP API request in the following format:

`https://endpoint/?SignatureVersion=1.0&SignatureMethod=HMAC-SHA1&Signature=xxxx%xxxx%3D&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`

Take DescribeEipAddresses as an example. If the AccessKey ID is `testid` and the AccessKey secret is `testsecret`, the pre-signed request URL is:

```
http://vpc.example.com/?Action=DescribeEipAddresses
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Perform the following operations to calculate the signature:

1. Use the request parameters to create a string-to-sign.

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeEipAddresses&Format%3DXML&SignatureMethod
%3DHMAC-SHA1&SignatureNonce%3D3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf&SignatureVersion%3D1
.0&TimeStamp%3D2016-02-23T12%253A46%253A24Z&Version%3D2014-05-15
```

2. Calculate the HMAC value of the string-to-sign.

   Add an ampersand (&) after the AccessKey secret as the key to calculate the HMAC value. In this example, the key is `testsecret&` .

```
CT9X0VtwR86fNWSnsc6v8YGOjuE=
```

3. Add the signature string to the request as the Signature parameter.

```
http://vpc.example.com/?Action=DescribeEipAddresses
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
&Signature=xxxx%xxxx%3D
```

18.1.2.3. RAM authentication

Before you call an EIP operation as a RAM user, you must use an Apsara Stack tenant account to create an authorization policy to grant permissions to the RAM account. In the authorization policy, an Alibaba Cloud Resource Name (ARN) is used to specify a resource.

EIP resources that allow authorized access

The following table lists the EIP resources that allow authorized access and their ARNs.

Resource type	ARN
EIPs	`acs:vpc:$regionid:$accountid:eip/$allocationid`
	`acs:vpc:$regionid:$accountid:eip/*`
	`acs:vpc:*:$accountid:eip/*`
General resources	`acs:vpc:$regionid:$accountid:*`
	`acs:vpc:*:$accountid:*`

`$regionid/accoutid/vrouterid` are IDs of the specific resources, `*` represents all resources.

EIP API operations that allow authorized access

The following table lists the EIP API operations that allow authorized access and their ARNs.

API	ARN
AllocateEipAddress	`acs:vpc:$regionid:$accountid:eip/*`
AllocateEipAddressPro	`acs:vpc:$regionid:$accountid:eip/*`

AssociateEipAddres	`acs:vpc:$regionid:$accountid:eip/*`
	Associate an Elastic Compute Service (ECS) instance
	`acs:vpc:$regionid:$accountid:eip/$allocationid`
	`acs:ecs:$regionid:$accountid:instance/$instanceid`

DescribeEipAddresses	`acs:vpc:$regionid:$accountid:eip/*`

UnassociateEipAddress	Associate an ECS instance
	`acs:vpc:$regionid:$accountid:eip/$allocationid`
	`acs:ecs:$regionid:$accountid:instance/$instanceid`

ReleaseEipAddress	`acs:vpc:$regionid:$accountid:eip/$allocationid`
DescribeEipMonitorData	`acs:vpc:$regionid:$accountid:eip/$allocationid` `acs:ecs:$regionid:$accountid:instance/$instanceid`

18.1.2.4. Common parameters

This topic describes common parameters, including common request parameters and common response parameters. Common parameters are required in all API operations, regardless of the operation being called.

Common request parameters

Common request parameters must be included in all EIP API requests.

Common request parameters

Parameter	Type	Required	Description
Format	String	No	The format in which to return the response. Valid values: *JSON and XML. Default value: JSON.*
Version	String	Yes	The version number of the API. Format: `YYYY-MM-DD`. Set the value to *2016-04-28*
AccessKeyId	String	Yes	The AccessKey ID provided to you by Apsara Stack.

Parameter	Type	Required	Description
Signature	String	Yes	The signature string of the current request.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to *HMAC-SHA1*
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC. For example, 2013-01-10T12:00:00Z.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to 1.0
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.

Examples

```
http://vpc.example.com/?Action=DescribeEipAddresses
&Timestamp=2016-02-23T12:46:24Z
&Format=XML
&AccessKeyId=testid
&SignatureMethod=HMAC-SHA1
&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf
&Version=2016-04-28
&SignatureVersion=1.0
```

Common response parameters

API responses use the HTTP response format where a 2XX status code indicates a successful call and a 4XX or 5XX status code indicates a failed call. Responses can be returned in either the JSON or XML format. You can specify the response format in the request. The default response format is XML.

Every response returns a unique RequestId regardless of whether the call is successful.

- XML format

```
<? xml version="1.0" encoding="utf-8"? >
      <!—Result Root Node-->
      <Interface Name+Response>
      <!—Return Request Tag-->
      <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
      <!—Return Result Data-->
      </Interface Name+Response>
```

- JSON format

```
{
      "RequestId":"4C467B38-3910-447D-87BC-AC049166F216",
      /*Return Result Data*/
  }
```

18.1.2.5. Elastic IP addresses

18.1.2.5.1. AllocateEipAddress

Applies for an elastic IP address (EIP).

Description

After you call this operation, the system randomly allocates an EIP that is in the **Available** state in the specified region. EIPs support only the ICMP, TCP, and UDP transport layer protocols. The IGMP and SCTP protocols are not supported.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AllocateEipAddress	The operation that you want to perform. Set the value to **AllocateEipAddress**.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to apply for an EIP. You can call the `DescribeRegions` operation to query region IDs.
Bandwidth	String	No	1	The bandwidth limit of the EIP. Valid values: **1** to **200**. Unit: Mbit/s. Default value: **1**.

Parameter	Type	Required	Example	Description
Period	Integer	No	1	The subscription duration of the EIP. When **PricingCycle** is set to **Month**, **Period** can be set from **1 to 9**. When **PricingCycle** is set to **Year**, **Period** can be set from **1 to 3**. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.
ISP	String	No	BGP	The line type. Default value: **BGP**. • If your account is in the single-path BGP whitelist, you can set the parameter to **ChinaTelecom**, **ChinaUnicom**, or **ChinaMobile**. • This parameter is required if your workloads are deployed in the China East 1 Finance region. In this case, set the value to **BGP_FinanceCloud**.
ActivityId	Long	No	111111	The promotion code. You can leave this parameter empty.
Netmode	String	No	public	The type of network. Set the value to **public** (Internet).

Parameter	Type	Required	Example	Description
AutoPay	Boolean	No	false	Specifies whether to enable automatic payment. Valid values: **false**: disables automatic payment. After an order is generated, you must go to the order center to complete the payment. **true**: enables automatic payment. After an order is generated, the system automatically deducts fees from your account balance to pay for the order. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, this parameter is not required. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.
PricingCycle	String	No	Month	The billing cycle of the subscription EIP. Valid values: **Month**: billed on a monthly basis. This is the default value. **Year**: billed on an annual basis. This parameter is required when **InstanceChargeType** is set to **PrePaid**. When **InstanceChargeType** is set to **PostPaid**, this parameter is not required. **Note** This parameter is unavailable for EIPs that are purchased on the Alibaba Cloud International site.

Parameter	Type	Required	Example	Description
InstanceChargeType	String	No	PostPaid	The billing method of the EIP. Valid values: **PrePaid**: subscription. **PostPaid**: pay-as-you-go. This is the default value. When **InstanceChargeType** is set to **PrePaid**, you must set **InternetChargeType** to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, you can set **InternetChargeType** to **PayByBandwidth** or **PayByTraffic**. **Note** If you want to purchase an EIP from the Alibaba Cloud International site, you must set this parameter to **PostPaid** (pay-as-you-go).
InternetChargeType	String	No	PayByTraffic	The metering method of the EIP. Valid values: **PayByBandwidth**: pay-by-bandwidth. This is the default value. **PayByTraffic**: pay-by-data-transfer. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
ResourceGroupId	String	No	rg-acfmxazffggds****	The ID of the enterprise resource group.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
EipAddress	String	10.XX.XX.78	The allocated EIP.
AllocationId	String	eip-25877c70gddh****	The ID of the EIP.
OrderId	Long	10	The order number. This parameter is returned only when **InstanceChargeType** is set to **PrePaid**.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.
ResourceGroupId	String	rg-acfmxazfdgdg****	The ID of the enterprise resource group.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AllocateEipAddress
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateEipAddressrResponse>
  <ResourceGroupId>rg-acfmxazfdgdg****</ResourceGroupId>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
  <AllocationId>eip-25877c70gddh****</AllocationId>
  <EipAddress>10.XX.XX.78</EipAddress>
  <OrderId>10</OrderId>
</AllocateEipAddressrResponse>
```

`JSON` format

```
{
    "AllocateEipAddressrResponse": {
        "ResourceGroupId": "rg-acfmxazfdgdg****",
        "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF",
        "AllocationId": "eip-25877c70gddh****",
        "EipAddress": "10.XX.XX.78",
        "OrderId": 10
    }
}
```


Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	InvalidParameter	Specified value of "InternetChargeType" is not valid	The error message returned because InternetChargeType is set to an invalid value.
400	InvalidParameter	Specified value of "Bandwidth" is not valid.	The error message returned because the specified bandwidth limit is invalid.
400	InsufficientBalance	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded.	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	ReserveIpFail	Reserve eip failed.	The error message returned because the system failed to reserve the EIP.
400	InvalidRegion.NotSupport	The specified region does not support.	The error message returned because the specified region does not support this operation.

HttpCode	Error code	Error message	Description
400	InvalidResourceGroupId	The specified ResourceGroupId does not exist.	The error message returned because the specified resource group ID does not exist.
409	OperationConflict	Request was denied due to conflict with a previos request.	The error message returned because a request conflict occurs. Try again later or submit a ticket to report the problem.

18.1.2.5.2. AllocateEipAddressPro

Applies for a specified elastic IP address (EIP).

Request parameters

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region where you want to apply for a specified EIP. You can call the `DescribeRegions` operation to query region IDs.
IpAddress	String	No	12.XX.XX.23	The IP address of the specified EIP. Specify **IpAddress** or **InstanceId**. If you leave both parameters empty, the system randomly allocates an EIP to your account.
InstanceId	String	No	eip-25877c70gddh****	The ID of the specified EIP. Specify **IpAddress** or **InstanceId**. If you leave both parameters empty, the system randomly allocates an EIP to your account.
Bandwidth	String	No	5	The bandwidth limit of the specified EIP. Unit: Mbit/s. Default value: **1**. Unit: Mbit/s.

Parameter	Type	Required	Example	Description
Period	Integer	No	1	The subscription duration of the specified EIP. When **PricingCycle** is set to **Month**, **Period** can be set from **1** to **9**. When **PricingCycle** is set to Year, **Period** can be set from **1** to **3**. When **InstanceChargeType** is set to **PrePaid**, this parameter is required. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter.
ISP	String	No	BGP	The line type. Default value: **BGP**. If your account is in the single-path BGP whitelist, you can set the parameter to **ChinaTelecom**, **ChinaUnicom**, or **ChinaMobile**. This parameter is required if your workloads are deployed in the China East 1 Finance region. In this case, set the value to **BGP_FinanceCloud**.
Netmode	String	No	public	The type of network. Set the value to **public** (Internet). Default value: **public** (Internet).
AutoPay	Boolean	No	true	Specifies whether to enable automatic payment. Valid values: **false**: disables automatic payment. After an order is generated, you must go to the order center to complete the payment. **true**: enables automatic payment. After an order is generated, the system automatically deducts fees from your account balance to pay for the order. When **InstanceChargeType** is set to **PrePaid**, this parameter is required. When **InstanceChargeType** is set to **PostPaid**, ignore this parameter.

Parameter	Type	Required	Example	Description
InstanceChargeType	String	No	PostPaid	The billing method of the specified EIP. Valid values: **PrePaid**: subscription. **PostPaid**: pay-as-you-go. This is the default value. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
InternetChargeType	String	No	PayByBandwidth	The metering method of the specified EIP. Valid values: **PayByBandwidth** (default): pay-by-bandwidth **PayByTraffic**: pay-by-data-transfer. When **InstanceChargeType** is set to **PrePaid**, **InternetChargeType** must be set to **PayByBandwidth**. When **InstanceChargeType** is set to **PostPaid**, **InternetChargeType** can be set to **PayByBandwidth** or **PayByTraffic**.
ResourceGroupId	String	No	rg-resourcegroup****	The ID of the resource group to which the EIP belongs.
ClientToken	String	No	0c593ea1-3bea-11e9-b96b-88e9fe637760	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
AllocationId	String	eip-25877c70gddh****	The ID of the specified EIP.

Parameter	Type	Example	Description
EipAddress	String	12.XX.XX.23	The IP address of the specified EIP.
OrderId	Long	20190000	The ID of the order.
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.
ResourceGroupId	String	rg-resourcegroup****	The ID of the resource group to which the EIP belongs.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AllocateEipAddressPro
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AllocateEipAddressProResponse>
  <ResourceGroupId>rg-resourcegroup****</ResourceGroupId>
  <RequestId>4EC47282-1B74-4534-BD0E-403F3EE64CAF</RequestId>
  <AllocationId>eip-25877c70gddh****</AllocationId>
  <EipAddress>12.XX.XX.23</EipAddress>
  <OrderId>20190000</OrderId>
</AllocateEipAddressProResponse>
```

`JSON` format

```
{
    "ResourceGroupId": "rg-resourcegroup****",
    "RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF",
    "AllocationId": "eip-25877c70gddh****",
    "EipAddress": "12.XX.XX.23",
    "OrderId": 20190000
}
```

Error codes

HttpCode	Error code	Error message	Description

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	InvalidParameter	Specified value of "InternetChargeType" is not valid	The error message returned because InternetChargeType is set to an invalid value.
400	InvalidParameter	Specified value of "Bandwidth" is not valid.	The error message returned because the specified bandwidth limit is invalid.
400	InsufficientBalance	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
400	QuotaExceeded.Eip	Elastic IP address quota exceeded.	The error message returned because the number of EIPs reaches the quota. You can submit a ticket to request a quota increase. We recommend that you use NAT gateways.
400	ReserveIpFail	Reserve eip failed.	The error message returned because the system failed to reserve the specified EIP.
400	InvalidRegion.NotSupport	The specified region does not support.	The error message returned because the specified region does not support this operation.
400	InvalidResourceGroupId	The specified ResourceGroupId does not exist.	The error message returned because the specified resource group ID does not exist.

18.1.2.5.3. AssociateEipAddress

Associates an elastic IP address (EIP) with an instance that belongs to the same region as the EIP.

Description

When you call the operation, take note of the following items:

- You can associate an EIP with an Elastic Compute Service (ECS) instance, a Server Load Balancer (SLB) instance, a secondary elastic network interface (ENI), or a NAT gateway that is deployed in a virtual private cloud (VPC). The EIP and the instance with which you want to associate the EIP must belong to the same region.
- To associate an EIP with a NAT gateway, make sure that no NAT service plan that was purchased before November 3, 2017 exists in your account.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	AssociateEipAddress	The operation that you want to perform. Set the value to **AssociateEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7ujsxdc****	The ID of the EIP that you want to associate with an instance.
InstanceId	String	Yes	i-2zebb08phyczzawe****	The ID of the instance with which you want to associate the EIP. NAT gateways, SLB instances, ECS instances, secondary ENIs, and high-availability virtual IP addresses (HAVIPs) are supported.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
InstanceType	String	No	EcsInstance	The type of instance with which you want to associate the EIP. Valid values: • **Nat**: a NAT gateway • **SlbInstance**: an SLB instance • **EcsInstance**: an ECS instance • **NetworkInterface**: a secondary ENI • **HaVip**: an HAVIP
InstanceRegionId	String	No	cn-hangzhou	The ID of the region where the instance to be associated with the EIP is deployed. **Note** This parameter is required only when the EIP is associated with a shared-bandwidth Global Accelerator (GA) instance.

Parameter	Type	Required	Example	Description
PrivateIpAddress	String	No	192.XX.XX.4	An IP address that belongs to the CIDR block of a vSwitch. If you do not set this parameter, the system allocates a private IP address based on the VPC ID and vSwitch ID.
Mode	String	No	NAT	The mode in which you associate the EIP. Valid values: • **NAT** (default): NAT mode • **MULTI_BINDED**: multi-EIP to ENI mode • **BINDED**: cut-through mode Note This parameter does not support **BINDED**. Log on to the console to set the cut-through mode. This parameter is required only when **InstanceType** is set to **NetworkInterface**.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001sdfg	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. **ClientToken** can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	C0FD0EED-F90D-4479-803D-DD62335357E5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=AssociateEipAddress
&AllocationId=eip-2zeerraiwb7ujsxdc****
&InstanceId=i-2zebb08phyczzawe****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<AssociateEipAddressResponse>
  <RequestId>C0FD0EED-F90D-4479-803D-DD62335357E5</RequestId>
</AssociateEipAddressResponse>
```

`JSON` format

```
{
    "RequestId": "C0FD0EED-F90D-4479-803D-DD62335357E5"
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InvalidAssociation.Duplicated	Specified instance already is associated.	The error message returned because an EIP or a GA instance is already associated with the specified instance. You must disassociate the EIP or GA instance from the specified instance before you can perform the operation.
400	OperationDenied	Specified instance is not in VPC.	The error message returned because the specified instance does not exist in the VPC.
400	InvalidParameter.Mismatch	Specified elastic IP address and ECS instance are not in the same region.	The error message returned because the specified EIP and ECS instance do not belong to the same region.
400	IncorrectEipStatus	Current elastic IP status does not support this operation	The error message returned because the state of the EIP does not support the operation.
404	InvalidInstanId.NotFound	Specified instance does not exist.	The error message returned because the specified instance does not exist. Check whether the ID is valid.

HttpCode	Error code	Error message	Description
400	IncorrectInstanceStatus	Current instance status does not support this operation.	The error message returned because the state of the instance does not support the operation.
400	InvalidInstanceType.ValueNotSupported	The specified value of InstanceType is not supported.	The error message returned because InstanceType is set to an invalid value.
400	IncorrectHaVipStatus	HaVip can be operated by this action only when it's status is Available or InUse.	The error message returned because the state of the HAVIP does not support the operation. You can perform the operation only when the HAVIP is in the Available or InUse state.
400	InvalidParameter	The specified parameter is not valid.	The error message returned because the parameter is set to an invalid value.
400	OperationDenied	Eip of default vpc not allow this operation	The error message returned because EIPs in the default VPC do not support the operation.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	InvalidBindingStatus	The eip binding status invalid.	The error message returned because the binding mode of the EIP is invalid.
400	BIND_INSTANCE_HAVE_PORTMAP_OR_BIND_EIP	The instance may have portMap or already bind eip.	The error message returned because a port forwarding rule is configured for the ECS instance. Delete the port forwarding rule and try again.
400	BIND_INSTANCE_OWENER_ERROR	Cannot operate the eip.	The error message returned because you are unauthorized to manage the specified EIP.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParams.NotFound	instance not found	The error message returned because the specified instance does not exist.

HttpCode	Error code	Error message	Description
503	ServiceUnavailable	The request has failed due to a temporary failure of the server.	The error message returned because the request failed due to a temporary malfunction of the server.

18.1.2.5.4. ModifyEipAddressAttribute

Modifies the name, description, and bandwidth limit of a specified elastic IP address (EIP).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyEipAddressAttribute	The operation that you want to perform. Set the value to **ModifyEipAddressAttribute**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to modify.
Bandwidth	String	No	100	The bandwidth limit of the EIP. Valid values: **1** to **200**. Unit: Mbit/s.
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
Name	String	No	Test123	The name of the EIP. The name must be 2 to 128 characters in length, and can contain, digits, periods (.), underscores (_), and hyphens (-). It must start with a letter. The name cannot start with `http://` or `https://`.
Description	String	No	abc	The description of the EIP. The description must be 2 to 256 characters in length. It must start with a letter but cannot start with `http://` or `https://`.

Response parameters

Parameter	Type	Example	Description
RequestId	String	4EC47282-1B74-4534-BD0E-403F3EE64CAF	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyEipAddressAttribute
&AllocationId=eip-2zeerraiwb7uj6i0d****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyEipAddressAttributeResponse>
      <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</ModifyEipAddressAttributeResponse>
```

`JSON` format

```
{
    "ModifyEipAddressAttributeResponse": {
        "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
400	InsufficientBalance.Eip	Your account does not have enough balance.	The error message returned because the balance in your account is insufficient. Top up your account and try again.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParameter	Specified value of "Bandwidth" is not supported.	The error message returned because the specified bandwidth limit is invalid.
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.

HttpCode	Error code	Error message	Description
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.
404	InvalidAllocationId.NotFound	Specified allocation ID is not found..	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	InvalidParameter	The parameter is invalid.	The error message returned because the parameter is set to an invalid value.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.

18.1.2.5.5. UnassociateEipAddress

Disassociates an elastic IP address (EIP) from an instance.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UnassociateEipAddress	The operation that you want to perform. Set the value to **UnassociateEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to disassociate.
InstanceId	String	Yes	i-hp3akk9irtd69jad****	The ID of the instance from which you want to disassociate the EIP.
Force	Boolean	No	false	Specifies whether to disassociate the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway. Valid values: • **false** (default): does not disassociate the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway. • **true**: disassociates the EIP from a NAT gateway if a DNAT or SNAT entry is added to the NAT gateway.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs.
InstanceType	String	No	EcsInstance	The type of instance from which you want to disassociate the EIP. Valid values: • **EcsInstance** (default): an Elastic Compute Service (ECS) instance that is deployed in a virtual private cloud (VPC) • **SlbInstance**: a Server Load Balancer (SLB) instance that is deployed in a VPC • **NetworkInterface**: a secondary elastic network interface (ENI) that is deployed in a VPC • **Nat**: a NAT gateway • **HaVip** a high-availability virtual IP address (HAVIP)
PrivateIpAddress	String	No	192.XX.XX.2	The private IP address of the ECS instance or the secondary ENI from which you want to disassociate the EIP.
ClientToken	String	No	02fb3da4-130e-11e9-8e44-001***	The client token that is used to ensure the idempotence of the request. You can use the client to generate the value, but you must ensure that it is unique among different requests. ClientToken can contain only ASCII characters and cannot exceed 64 characters in length.

Response parameters

Parameter	Type	Example	Description
RequestId	String	0ED8D006-F706-4D23-88ED-E11ED28DCAC0	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=UnassociateEipAddress
&AllocationId=eip-2zeerraiwb7uj6i0d****
&InstanceId=i-hp3akk9irtd69jad****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<UnassociateEipAddressResponse>
   <RequestId>0ED8D006-F706-4D23-88ED-E11ED28DCAC0</RequestId>
</UnassociateEipAddressResponse>
```

`JSON` format

```
{
    "RequestId": "0ED8D006-F706-4D23-88ED-E11ED28DCAC0"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.
400	InvalidInstanceId.NotFound	Specified instance does not exist.	The error message returned because the specified instance does not exist. Check whether the specified instance is valid.
400	IncorrectInstanceStatus	The current status of instance does not support this operation.	The error message returned because the state of the instance does not support the operation.
400	InvalidInstanceType.ValueNotSupported	The specified value of InstanceType is not supported.	The error message returned because InstanceType is set to an invalid value.
400	IncorrectHaVipStatus	This operation is denied because satus of the specified HaVip is neither Available nor InUse.	The error message returned because you cannot perform the operation when the specified HAVIP is in the Available or InUse state.

HttpCode	Error code	Error message	Description
400	OperationDenied	Eip of default vpc not allow this operation	The error message returned because EIPs in the default VPC do not support the operation.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.
400	InvalidParameter	The specified parameter is not valid.	The error message returned because the parameter is set to an invalid value.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	InvalidBindingStatus	The eip binding status invalid.	The error message returned because the binding mode of the EIP is invalid.

18.1.2.5.6. ReleaseEipAddress

Releases a specified elastic IP address (EIP).

Description

Before you release an EIP, make sure that the EIP meets the following requirements:

- You can release only EIPs that are in the **Available** state.
- You can release only EIPs that are billed on a pay-as-you-go basis. You cannot release subscription EIPs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ReleaseEipAddress	The operation that you want to perform. Set the value to **ReleaseEipAddress**.
AllocationId	String	Yes	eip-2zeerraiwb7uj6i0d****	The ID of the EIP that you want to release.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-qingdao-env17-d01	The ID of the region to which the EIP belongs. You can call the `DescribeRegions` operation to query region IDs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	748C38F6-9A3D-482E-83FB-DB6C39C68AEA	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ReleaseEipAddress
&AllocationId=eip-2zeerraiwb7uj6i0d****
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ReleaseEipAddressResponse>
      <RequestId>748C38F6-9A3D-482E-83FB-DB6C39C68AEA</RequestId>
</ReleaseEipAddressResponse>
```

`JSON` format

```
{
  "RequestId": "748C38F6-9A3D-482E-83FB-DB6C39C68AEA"
}
```

Error codes

HttpCode	Error code	Error message	Description
404	InvalidAllocationId.NotFound	Specified allocation ID is not found	The error message returned because the specified EIP does not exist. Check whether the value of the parameter is valid.
400	IncorrectEipStatus	Current elastic IP status does not support this operation.	The error message returned because the state of the EIP does not support this operation.

HttpCode	Error code	Error message	Description
500	InternalError	The request processing has failed due to some unknown error.	The error message returned because an unknown error occurred.
404	Forbidden.RegionNotFound	Specified region is not found during access authentication.	The error message returned because the specified region does not exist. Check whether the specified region ID is valid.
400	Forbidden.ChargeTypeIsPrepaid	It's forbidden to release a prepaid EIP	The error message returned because you cannot release subscription EIPs.
400	Forbbiden	The eip instance owener error	The error message returned because you are unauthorized to perform the operation on the EIP.
400	TaskConflict.AssociateGlobalAccelerationInstance	Operate too frequent.	The error message returned because the number of requests that you send exceeds the upper limit.

18.1.2.5.7. DescribeEipGatewayInfo

Queries information about the gateway and subnet mask of an elastic IP address (EIP).

Description

You can query only EIPs that are associated with secondary elastic network interfaces (ENIs) in multi-EIP to ENI mode.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeEipGatewayInfo	The operation that you want to perform. Set the value to **DescribeEipGatewayInfo**.
InstanceId	String	Yes	eni-bp1d66qjxb3qoin3****	The ID of the secondary ENI that is associated with the EIP.
RegionId	String	Yes	cn-qingdao-env17-d01	The region to which the EIP that you want to query belongs. You can call the `DescribeRegions` operation to query region IDs.

Response parameters

Parameter	Type	Example	Description
Code	String	200	The status code of the operation.
EipInfos	Array of EipInfo		Detailed information about the EIP.
EipInfo			
Ip	String	47.XX.XX.236	The IP address of the EIP.
IpGw	String	47.XX.XX.1	The IP address of the gateway that is associated with the EIP.
IpMask	String	255.255.255.0	The subnet mask of the EIP.
Message	String	successful	The result of the operation.
RequestId	String	C0FD0EED-F90D-4479-803D-DD62335357E5	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeEipGatewayInfo
&InstanceId=eni-bp1d66qjxb3qoin3****
&RegionId=cn-qingdao-env17-d01
&<Common request parameters>
```

Sample success responses

`XML` format

```
<DescribeEipGatewayInfoResponse>
  <Message>successful</Message>
  <RequestId>C0FD0EED-F90D-4479-803D-DD62335357E5    </RequestId>
  <Code>200</Code>
  <EipInfos>
        <IpMask>255.255.255.0</IpMask>
        <IpGw>47.XX.XX.1</IpGw>
        <Ip>47.XX.XX.236</Ip>
  </EipInfos>
</DescribeEipGatewayInfoResponse>
```

`JSON` format

```
{
    "Message": "successful",
    "RequestId": "C0FD0EED-F90D-4479-803D-DD62335357E5",
    "Code": 200,
    "EipInfos": {
        "IpMask": "255.255.255.0",
        "IpGw": "47.XX.XX.1",
        "Ip": "47.XX.XX.236"
    }
}
```

Error codes

HttpCode	Error code	Error message	Description
403	Forbbiden	User not authorized to operate on the specified resource.	The error message returned because you are unauthorized to perform the operation on the specified resource. Apply for permissions and try again.

19.Apsara Stack Security

19.1. Developer Guide

19.1.1. Apsara Stack Security Console

19.1.1.1. List of operations

This topic introduces all of the Apsara Stack Security console operations that you can call. For more information, see the corresponding operation description.

Operation	Description
DescribeAliyunAccounts	Queries Alibaba Cloud accounts.
ModifyAliyunAccount	Modifies the information of an Alibaba Cloud account.
DescribeFeatures	Queries the deployed Apsara Stack Security features.

19.1.1.2. Make API requests

19.1.1.2.1. Request structure

Apsara Stack Security API operations use the RPC protocol. This topic describes the structure of API requests.

Description

You can call Apsara Stack Security API operations by sending HTTP requests. The request syntax is as follows:

```
http://endpoint/?Action=xx&parameters
```

where:

- `endpoint`: the endpoint used to call a cloud service. The endpoint for the Apsara Stack Security console is `yundunprivate.[ RegionId].example.com`.

  > **Note** example.com indicates the domain name of Apsara Stack.

- `Action`: the name of the operation being performed.

  For example, to obtain Apsara Stack Security features that have been deployed, you must set the Action parameter to DescribeFeatures.

- `parameters`: the request parameters for the operation. Separate multiple parameters with ampersands (&). Request parameters include both common parameters and operation-specific parameters.

- Common parameters include information such as the API version and authentication information.
- For more information about operation-specific parameters, see the corresponding operation description.

Example

Call the DescribeFeatures operation to query the Apsara Stack Security features that are deployed.

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeFeatures&AccessKeyId=key-test
&Format=JSON&SecureTransport=true&SignatureMethod=HMAC-SHA1&SignatureNonce=15215528852396&S
ignatureVersion=1.0&SourceIp=1xxxx6&Timestamp=2018-03-02Txxxxxxx&Version=2018-01-16&Signatu
re=xxxx%xxxx%3D
```

API requests are presented in the following easy-to-read format in this document:

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeFeatures
&Format=JSON
&Version=2018-01-16
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

19.1.1.2.2. Request signatures

Apsara Stack Security authenticates each access request. You need to include a signature for the submitted HTTP or HTTPS request.

Authorization

To ensure the security of your account, we recommend that you use a Resource Access Management (RAM) user to call operations. Before you use a RAM user to call an API operation, you must grant the RAM user the corresponding permission to call the operation by creating an authorization policy and attaching the policy to the RAM user.

Signature

You must sign all API requests to ensure security. Alibaba Cloud uses the request signature to verify the identity of the API caller. When you manually make an API request, you need to use the AccessKey Secret to calculate the signature, that is, the hash-based message authentication code (HMAC) value, based on the encoded and sorted request string. For more information, see the definition in RFC 2104.

This section uses the raw access parameters in the following table to describe how to create an operation signature.

Parameter	Description
Access point	`http://tds.[ RegionId].example.com/?`
Operation-specific parameters	`Action=DescribeFeatures`

Parameter	Description
Common parameters except Signature	&Timestamp=2018-12-24T12:46:24Z &Format=JSON &AccessKeyId=<yourAccessKeyId> &SignatureMethod=HMAC-SHA1 &SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf &Version=2018-12-03 &SignatureVersion=1.0
AccessKey Secret	<yourAccessKeySecret>

1. Create a canonicalized query string by arranging the request parameters.

   > **Note** The request parameters include operation-specific parameters and all common request parameters except Signature.

   i. Sort the parameters.

   Sort the request parameters in alphabetical order.

   ii. Encode the parameters.

   Use UTF-8 to URL-encode the parameter names and values. The encoding rules are as follows:

   - Uppercase letters, lowercase letters, digits, and some special characters such as hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
   - Other characters must be percent encoded in %XY format. XY represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as %22.
   - Extended UTF-8 characters are encoded in %XY%ZA... format.
   - Spaces must be encoded as %20. Do not encode spaces as plus signs (+).

   iii. Connect the encoded parameter names and values with equal signs (=).

   iv. Then, sort the parameter name and value pairs connected by equal signs in alphabetical order. Connect them with ampersands (&) to canonicalize a query string.

2. Use the canonicalized query string to construct the string for signature calculation based on the following rules:

   ```
   StringToSign=HTTPMethod + "&" + percentEncode("/") + "&" +
   percentEncode(CanonicalizedQueryString)
   ```

3. Calculate the HMAC value of the StringToSign based on the definition in RFC 2104.

   > **Note** The key used for signature calculation is your AccessKey Secret jointed with an ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the HMAC value in Base64 to obtain the signature string.

   ```
   LEW8N4y7Uasop******
   ```

5. Add the signature string to the request as the Signature parameter.

19.1.1.2.3. Common parameters

Common request parameters must be included in all Apsara Stack Security API requests, such as the API version number and authentication information.

Parameter	Type	Required	Description
Version	String	Yes	The version number of the API. The value is in the format of YYYY-MM-DD. Set the value to *2018-01-16*.
AccessKeyId	String	Yes	The AccessKey ID provided to you by Alibaba Cloud.
Signature	String	Yes	The signature string of the current request.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to *HMAC-SHA1*.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the `YYYY-MM-DDThh:mm:ssZ` format. The time must be in UTC. For example, 2014-05-26T12:00:00Z indicates 20:00:00 on May 26, 2014 (UTC+8).
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to *1.0*.
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
ResourceOwnerAccount	String	No	The owner account (the logon username) of the resource you want to access by using this API request.
Format	String	No	The format of the response. Valid values: *JSON and XML*. Default value: XML.

19.1.1.2.4. Response structure

Apsara Stack Security API responses can be returned in either the XML or JSON format. Every response returns a unique ID (indicated by RequestId) regardless of whether the call is successful.

Sample responses (XML format)

```
<? xml version="1.0" encoding="UTF-8"? >
<! --The root node of the result-->
<Operation name+Response>
    <! --Returned request ID-->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! --Returned data-->
</Operation name+Response>
```

Sample responses (JSON format)

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Returned data */
}
```

19.1.1.3. APIs

19.1.1.3.1. DescribeAliyunAccounts

Description

You can call this operation to query Alibaba Cloud accounts.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeAliyunAccounts*.
CurrentPage	Integer	Yes	The number of the page to return.
PageSize	Integer	Yes	The number of records to return on each page.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
CurrentPage	Integer	The number of the current page returned.

Parameter	Type	Description
PageSize	Integer	The number of records returned on each page.
TotalCount	Integer	The total number of returned pages.
HttpStatusCode	Integer	The HTTP status code returned.
AliyunAccounts	Array	The Alibaba Cloud accounts. For more information, see the following descriptions.
Id	Integer	The account record ID.
Aliuid	Long	The ID of the Alibaba Cloud account.
Account	String	The name of the Alibaba Cloud account.
AccessKey	String	The AccessKey ID of the Alibaba Cloud account.
AccessSecret	String	The AccessKey secret of the Alibaba Cloud account.
DataSecret	String	The DataSecret of the Alibaba Cloud account.
LicenseAegisNum	Integer	The number of Server Guard licenses.
LicenseTime	Long	The time when the licenses expire, in timestamp format.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeAliyunAccounts
&CurrentPage=1
&PageSize=10
&<Common request parameters>
```

- Sample response (JSON format)

```
{
 "TotalCount":1,
 "PageSize":30,
 "RequestId":"7E33A454-20AA-49B1-8A9B-8979EFBDEDFC",
 "CurrentPage":1,
 "AliyunAccounts":[
  {
   "Account":"1113454564",
   "AccessSecret":"*****",
   "AccessKey":"<yourAccessKeyId>",
   "Id":2,
   "LicenseAegisNum":0,
   "Aliuid":1441871509587522,
   "LicenseTime":1589596257000,
   "DataSecret":"*****"
  }
 ],
 "HttpStatusCode":200
}
```


19.1.1.3.2. ModifyAliyunAccount

Description

You can call this operation to modify the information of an Alibaba Cloud account with a specified account record ID.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *ModifyAliyunAccount*.
Id	Integer	Yes	The account record ID.
Aliuid	Long	No	The ID of the Alibaba Cloud account.
Account	String	No	The name of the Alibaba Cloud account.
AccessKey	String	No	The AccessKey ID of the Alibaba Cloud account.
AccessSecret	String	No	The AccessKey secret of the Alibaba Cloud account.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://yundunprivate.[ RegionId].example.com/?Action=ModifyAliyunAccount
&Id=2
&Account=1113454564
&Aliuid=1441871509587522
&AccessKey=<yourAccessKeyId>
&AccessSecret=xxxxxxxxx
&<Common request parameters>
```

- Sample response (JSON format)

```
{
 "RequestId":"C92B6187-603B-4E01-B0D7-74817F43852D"
}
```

19.1.1.3.3. DescribeFeatures

Description

You can call this operation to obtain a list of the deployed Apsara Stack Security features.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DescribeFeatures*.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Features	List	The list of the deployed Apsara Stack Security features.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeFeatures
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"BAEF6CE3-9990-4BDA-A056-4D269A724817",
 "Features":[
  "Basic",
  "Audit",
  "Sas",
  "Waf"
 ]
}
```

19.1.2. Threat Detection Service (TDS)

19.1.2.1. List of operations by function

The following tables list API operations available for use in Threat Detection Service.

- Configuration assessment
- Security alerts
- Vulnerability management
- Baseline checks
- Asset management
- Asset fingerprints
- Notifications

Configuration assessment

API	Description
DescribeRiskItemType	Queries the types of check items in configuration assessment.
StartBaselineSecurityCheck	Starts the baseline check.
DescribeRiskCheckSummary	Queries check results.
ModifyRiskCheckStatus	Modifies the status of a check result.
DescribeRiskCheckResult	Queries the result of a check item.
DescribeSecurityCheckScheduleConfig	Queries the custom check cycle and time period.
ModifyRiskSingleResultStatus	Modifies the status of an asset affected by a check item.

Security alerts

API	Description
DescribeAlarmEventDetail	Queries the details of an alert.
DescribeSuspEventDetail	Queries the details of an exception.
DescribeAlarmEventList	Queries alerts of the security alert module.
DescribeSuspEvents	Queries exceptions.

Vulnerability management

API	Description
DescribeVulList	Queries vulnerabilities.
DescribeEmgVulGroup	Queries urgent vulnerabilities by group.
DescribeVulWhitelist	Queries the vulnerability whitelist by page.
DescribeConcernNecessity	Queries the priority of a vulnerability.
DescribeGroupedVul	Queries vulnerabilities by group.
ModifyCreateVulWhitelist	Creates a vulnerability whitelist.
DescribeAutoDelConfig	Queries the configurations of automatic vulnerability deletion.
ModifyOperateVul	Manages a detected vulnerability. For example, you can verify, ignore, or fix a vulnerability.

Baseline checks

API	Description
DescribeWarningMachines	Queries information about servers where baseline checks are performed.
DescribeStrategyExecDetail	Queries the detailed results of the last baseline check.
DescribeCheckWarnings	Queries specific risk items and check items on a specific server.
DescribeCheckWarningDetail	Queries the details of a specific check item.
DescribeCheckWarningSummary	Queries the statistics of baseline check results.
DescribeStratety	Queries the configurations of baseline check policies.

Asset management

API	Description
DescribeFieldStatistics	Queries assets.
DescribeGroupedTags	Queries tag statistics.
DescribeAllGroups	Queries information about all asset groups.
DeleteGroup	Deletes a server group.
CreateOrUpdateAssetGroup	Modifies the relationship between an asset and an asset group.
ModifyTagWithUuid	Modifies the relationship between a tag and a server or a cloud service.
DescribeInstanceStatistics	Queries the statistics of an asset.
DescribeCloudProductFieldStatistics	Queries the statistics of a cloud service.
DescribeDomainCount	Queries the number of domain assets.
DescribeDomainList	Queries domain assets.
DescribeDomainDetail	Queries the details of a domain asset.
DescribeCloudCenterInstances	Queries the asset information on the Assets page, such as the name and region of an asset.
DescribeSummaryInfo	Queries the security score of assets, the number of protected assets, and the number of unprotected assets.

Asset fingerprints

API	Description
DescribePropertyCount	Queries asset fingerprints. You can query the following types of asset fingerprints: process, port, software, and account.
DescribePropertyPortDetail	Queries the details of a specific port.
DescribePropertyProcDetail	Queries the details of a specific process.
DescribePropertyProcItem	Queries port information.
DescribePropertyProcItem	Queries process information.
DescribePropertySoftwareDetail	Queries the details of a software asset.
DescribePropertySoftwareItem	Queries software assets.
DescribePropertyUserDetail	Queries the details of a specific account.
DescribePropertyUserItem	Queries account information.

19.1.2.2. Make API requests

19.1.2.2.1. Request structure

Apsara Stack Security API operations use the RPC protocol. This topic describes the structure of API requests.

Description

You can call Apsara Stack Security API operations by sending HTTP requests. The request syntax is as follows:

```
http://endpoint/?Action=xx&parameters
```

where:

- `endpoint`: the endpoint of the Threat Detection Service API is `tds.[ RegionId].example.com`.
- `Action`: the name of the operation being performed.

  For example, to query the Apsara Stack Security features that are deployed, you must set the Action parameter to DescribeFeatures.
- `parameters`: the request parameters for the operation. Separate multiple parameters with ampersands (&). Request parameters include both common parameters and operation-specific parameters.
  - Common parameters include information such as the API version and identity authentication.
  - For more information about operation-specific parameters, see the corresponding operation description.

Examples

The following example demonstrates how to call the DescribeFeatures operation to query the Apsara Stack Security features that are deployed.

```
https://tds.[RegionId].example.com/?Action=DescribeFeatures&AccessKeyId=key-test&Format=JSON&SecureTransport=true&SignatureMethod=HMAC-SHA1&SignatureNonce=15215528852396&SignatureVersion=1.0&SourceIp=1xxxx6&Timestamp=2018-03-02Txxxxxxx&Version=2018-01-16&Signature=xxxx%xxxx%3D
```

API requests are presented in the following easy-to-read format in this document:

```
https://tds.[RegionId].example.com/?Action=DescribeFeatures
&Format=JSON
&Version=2018-01-16
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

19.1.2.2.2. Request signatures

Apsara Stack Security authenticates each access request. You need to include a signature for the submitted HTTP or HTTPS request.

Authorization

To ensure the security of your account, we recommend that you use a Resource Access Management (RAM) user to call operations. Before you use a RAM user to call an API operation, you must grant the RAM user the corresponding permission to call the operation by creating an authorization policy and attaching the policy to the RAM user.

Signature

You must sign all API requests to ensure security. Alibaba Cloud uses the request signature to verify the identity of the API caller. When you manually make an API request, you need to use the AccessKey Secret to calculate the signature, that is, the hash-based message authentication code (HMAC) value, based on the encoded and sorted request string. For more information, see the definition in RFC 2104.

This section uses the raw access parameters in the following table to describe how to create an operation signature.

Parameter	Description
Access point	`http://tds.[ RegionId].example.com/?`
Operation-specific parameters	`Action=DescribeFeatures`

Common parameters except Signature	`&Timestamp=2018-12-24T12:46:24Z`
	`&Format=JSON`
	`&AccessKeyId=<yourAccessKeyId>`
	`&SignatureMethod=HMAC-SHA1`
	`&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`
	`&Version=2018-12-03`
	`&SignatureVersion=1.0`

AccessKey Secret	`<yourAccessKeySecret>`

1. Create a canonicalized query string by arranging the request parameters.

   > **Note** The request parameters include operation-specific parameters and all common request parameters except Signature.

   i. Sort the parameters.

   Sort the request parameters in alphabetical order.

ii. Encode the parameters.

Use UTF-8 to URL-encode the parameter names and values. The encoding rules are as follows:

- Uppercase letters, lowercase letters, digits, and some special characters such as hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
- Other characters must be percent encoded in %XY format. XY represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as %22.
- Extended UTF-8 characters are encoded in %XY%ZA... format.
- Spaces must be encoded as %20. Do not encode spaces as plus signs (+).

iii. Connect the encoded parameter names and values with equal signs (=).

iv. Then, sort the parameter name and value pairs connected by equal signs in alphabetical order. Connect them with ampersands (&) to canonicalize a query string.

2. Use the canonicalized query string to construct the string for signature calculation based on the following rules:

```
StringToSign=HTTPMethod + "&" + percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

3. Calculate the HMAC value of the StringToSign based on the definition in RFC 2104.

> **Note** The key used for signature calculation is your AccessKey Secret jointed with an ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the HMAC value in Base64 to obtain the signature string.

```
LEW8N4y7Uasop******
```

5. Add the signature string to the request as the Signature parameter.

19.1.2.2.3. Common request parameters

The following table describes the common request parameters that are used to indicate information such as the API version and authentication information.

Name	Type	Required	Description
Version	String	Yes	The API version in the format of YYYY-MM-DD. Set the value to *2018-01-16*.
AccessKeyId	String	Yes	The key ID that Alibaba Cloud assigns to a user for service access.
Signature	String	Yes	The signature string.
SignatureMethod	String	Yes	The signature method. Set the value to *HMAC-SHA1*.

Name	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. Follow the ISO 8601 standard to specify the date and use the offset from Coordinated Universal Time (UTC) to specify the time zone. The format is `YYYY-MM-DDThh:mm:ssZ`. For example, 2014-05-26T12:00:00Z indicates 20:00:00 on May 26, 2014, Beijing time.
SignatureVersion	String	Yes	The signature algorithm version. Set the value to *1.0*.
SignatureNonce	String	Yes	The unique random number used to prevent network replay attacks. You must use different random numbers for different requests.
ResourceOwnerAccount	String	No	The owner account of the resource to be accessed through this API request, that is, the logon username.
Format	String	No	The format of the response. Set the value to *JSON or XML*. **Note** Default value: XML.

19.1.2.2.4. Response structure

Apsara Stack Security API responses support both the XML and JSON formats. The system always returns a unique identification code RequestId each time you send a request to call an operation, no matter whether the call is successful or not.

Sample responses (XML format)

```
<? xml version="1.0" encoding="UTF-8"? >
<! -- The root node of the result -->
<Operation name+Response>
    <! -- Returned request ID -->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! -- Returned data -->
</Operation name+Response>
```

Sample responses (JSON format)

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Returned data */
}
```

19.1.2.3. Brute-force attacks protection

19.1.2.3.1. CreateAntiBruteForceRule

Creates a defense rule against brute-force attacks protection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateAntiBruteForceRule	The operation that you want to perform. Set the value to **CreateAntiBruteForceRule**.
SourceIp	String	No	1.2.3.4	The source IP address of the request.
Name	String	No	The defense rules against brute-force attacks protection.	The name of the defense rule.
Span	Integer	No	15	The time period during which the number of logon attempts are calculated.
FailCount	Integer	No	10	The maximum number of logon attempts specified in the defense rule.
ForbiddenTime	Integer	No	10	The time period during which logons from the blocked IP address are blocked.
UuidList.N	RepeatList	No	uuid-1312133-ssas,uuid-1234-qwer-dss	The list of servers to which the defense rule is applied.

Parameter	Type	Required	Example	Description
DefaultRule	Boolean	No	true	Specifies whether to set the defense rule as the default rule. Valid values: • **true**: The defense rule is set as the default rule. • **false**: The defense rule is not set as the default rule.

Response parameters

Parameter	Type	Example	Description
CreateAntiBruteForceRule	Struct		The returned result of the defense rule.
RuleId	Long	6363	The ID of the defense rule.
RequestId	String	FB3E435F-4116-46F9-A5DE-C338DDA04F47	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=CreateAntiBruteForceRule
&<Common request parameters>
```

Sample success responses

`XML` format

```
<CreateAntiBruteForceRuleResponse>
  <CreateAntiBruteForceRule>
        <RuleId>6363</RuleId>
  </CreateAntiBruteForceRule>
  <requestId>FB3E435F-4116-46F9-A5DE-C338DDA04F47</requestId>
</CreateAntiBruteForceRuleResponse>
```

`JSON` format

```
{
    "CreateAntiBruteForceRule": {
        "RuleId": 6363
    },
    "requestId": "FB3E435F-4116-46F9-A5DE-C338DDA04F47"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.2.3.2. ModifyAntiBruteForceRule

Modifies the defense rule against brute-force attacks protection.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ModifyAntiBruteForceRule	The operation that you want to perform. Set the value to ModifyAntiBruteForceRule.
SourceIp	String	No	1.2.3.4	The source IP address of the request.
Id	Long	No	6263	The ID of the defense rule.
Name	String	No	Best practices	The name of the defense rule.
Span	Integer	No	10	The time period during which the number of logon attempts are calculated.
FailCount	Integer	No	10	The maximum number of logon attempts specified in the defense rule.
ForbiddenTime	Integer	No	12	The time period during which logons from the blocked IP address are blocked.
UuidList.N	RepeatList	No	uuid-13213-dasda	The list of servers to which the defense rule is applied.
DefaultRule	Boolean	No	true	Specifies whether to set the defense rule as the default rule. • **true**: The defense rule is set as the default rule. • **false**: The defense rule is not set as the default rule.

Response parameters

Parameter	Type	Example	Description
RequestId	String	F35F45B0-5D6B-4238-BE02-A62D0760E840	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ModifyAntiBruteForceRule
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ModifyAntiBruteForceRuleResponse>
  <requestId>F35F45B0-5D6B-4238-BE02-A62D0760E840</requestId>
</ModifyAntiBruteForceRuleResponse>
```

`JSON` format

```
{
    "requestId": "F35F45B0-5D6B-4238-BE02-A62D0760E840"
}
```

19.1.2.4. Notifications

19.1.2.4.1. DescribeDingTalk

Queries DingTalk notifications.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeDingTalk	The operation that you want to perform. Set the value to DescribeDingTalk.
RuleActionName	String	No	Vulnerability notification	The name of the notification.
PageSize	Integer	No	20	The number of entries to return on each page.

Parameter	Type	Required	Example	Description
CurrentPage	Integer	No	1	The page number of the current page.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B256A525-7E42-4BB9-A27C-9017FDDFF1A2	The ID of the request.
ActionList	Array		The list of notifications.
GmtModified	Long	1550828400000	The timestamp when the notification was modified.
Id	Integer	1	The ID of the notification.
AliUid	Long	12312412341	The UID of the user.
GmtCreate	Long	1550828400000	The timestamp when the notification was created.
Url	String	https://oapi.dingtalk.com/robot/send	The parameters of the notification.
IntervalTime	Integer	1000	The notification interval.
ActionName	String	Alert notification	The name of the notification.
Status	Integer	1	The status of the notification. Valid values: • **0**: disabled • **1**: enabled
ConfigList	String	[{\"type\":\"vul\",\"configItemList\":[{\"key\":\"key\",\"valueList\":\"123\"}]}]	The list of notification settings.
GroupIdList	String	"123,456"	GroupidList.

Parameter	Type	Example	Description
DingTalkLang	String	zh	The natural language of notifications. Valid values: • **zh**: Chinese • **en**: English
PageInfo	Struct		The page information.
PageSize	Integer	20	The number of entries returned per page.
TotalCount	Integer	1	The number of notifications.
CurrentPage	Integer	1	The page number of the current page.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeDingTalk
&<Common request parameters>
```

Sample success responses

`XML` format

```
<data >
    <PageInfo>
        <PageSize>20</PageSize>
        <CurrentPage>1</CurrentPage>
        <TotalCount>1</TotalCount>
    </PageInfo>
    <ActionList>
        <ActionName>Alert notification</ActionName>
        <GmtCreate>1550828400000</GmtCreate>
        <GmtModified>1550828400000</GmtModified>
        <IntervalTime>1000</IntervalTime>
        <Id>1</Id>
        <Url>https://oapi.dingtalk.com/robot/send</Url>
        <AliUid>12312412341</AliUid>
        <configList>[{"type":"vul","configItemList":[{"key":"key", "valueList":"123"}]}]</c
onfigList>
        <groupIdList>123,456</groupIdList>
    </ActionList>
</data >
<requestId>B256A525-7E42-4BB9-A27C-9017FDDFF1A2</requestId>
```

`JSON` format


```
{
  "data ": {
    "PageInfo": {
      "PageSize": 20,
      "CurrentPage": 1,
      "TotalCount":1
    },
    "ActionList": [{
      "ActionName": "Alert notification",
      "GmtCreate": "1550828400000",
      "GmtModified": "1550828400000",
      "IntervalTime": 1000,
      "Id": 1,
      "Url": "https://oapi.dingtalk.com/robot/send",
      "AliUid": 12312412341,
      "configList":"[{\"type\":\"vul\",\"configItemList\":[{\"key\":\"key\", \"valueList\":
\"123\"}]}]",
      "groupIdList":"123,456"
    }]
  },
  "requestId": "B256A525-7E42-4BB9-A27C-9017FDDFF1A2"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.2.4.2. DescribeNoticeConfig

Queries the notification settings.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeNoticeConfig	The operation that you want to perform. Set the value to DescribeNoticeConfig.
SourceIp	String	No	1.2.3.4	The source IP address of the request.

Response parameters

Parameter	Type	Example	Description
RequestId	String	D185B7FF-E24C-422D-83D3-C2A25C7A2727	The ID of the request.

Parameter	Type	Example	Description
NoticeConfigList	Array		Details of the notification settings.
TimeLimit	Integer	1	The time period during which notifications can be sent to the recipients. Valid values: • **0**: any time • **1**: 08:00 to 22:00
Route	Integer	7	The notification method.
Project	String	sas_suspicious	The project identifier.
AliUid	Long	121234141424	The UID of the user.
CurrentPage	Integer	1	The page number of the current page.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=DescribeNoticeConfig
&<Common request parameters>
```

Sample success responses

`XML` format

```
<code>200</code>
<data>
    <RequestId>D185B7FF-E24C-422D-83D3-C2A25C7A2727</RequestId>
    <NoticeConfigList>
        <Project>sas_suspicious</Project>
        <CurrentPage>1</CurrentPage>
        <TimeLimit>1</TimeLimit>
        <Route>7</Route>
        <AliUid>1049769453489698</AliUid>
    </NoticeConfigList>
    <NoticeConfigList>
        <Project>sas_healthcheck</Project>
        <CurrentPage>1</CurrentPage>
        <TimeLimit>1</TimeLimit>
        <Route>7</Route>
        <AliUid>1049769453489698</AliUid>
    </NoticeConfigList>
</data>
```

`JSON` format

```
{
  "code": 200,
  "data": {
  "RequestId":"D185B7FF-E24C-422D-83D3-C2A25C7A2727",
  "NoticeConfigList":[
    {
      "Project":"sas_suspicious",
      "CurrentPage":1,
      "TimeLimit":1,
      "Route":7,
      "AliUid":10497611111111
    },
    {
      "Project":"sas_healthcheck",
      "CurrentPage":1,
      "TimeLimit":1,
      "Route":7,
      "AliUid":10422222222
    }
  ]
}
}
```

Error codes

For a list of error codes, see Error codes.

19.1.2.5. Agent client

19.1.2.5.1. SasInstallCode

Queries the verification key used to run the agent installation command.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	SasInstallCode	The operation that you want to perform. Set the value to SasInstallCode.
SourceIp	String	No	1.2.3.4	The source IP address of the request.

Response parameters

Parameter	Type	Example	Description
RequestId	String	B256A525-7E42-4BB9-A27C-9017FDDFF1A2	The ID of the request.
data	String	eDkhGP	The verification key used to run the installation command when you manually install the Threat Detection Service agent.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=SasInstallCode
&<Common request parameters>
```

Sample success responses

`XML` format

```
<SasInstallCodeResponse>
  <requestId>B256A525-7E42-4BB9-A27C-9017FDDFF1A2</requestId>
  <data>eDkhGP</data>
</SasInstallCodeResponse>
```

`JSON` format

```
{
  "requestId": "B256A525-7E42-4BB9-A27C-9017FDDFF1A2",
  "data":"eDkhGP"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.2.5.2. PauseClient

Enables or disables the Threat Detection Service agent.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	PauseClient	The operation that you want to perform. Set the value to **PauseClient**.

Parameter	Type	Required	Example	Description
Uuids	String	Yes	uuid-1211-sadsd-2131	The UUIDs of servers for which the Threat Detection Service agent needs to be enabled or disabled.
Value	String	Yes	1	The status of the Threat Detection Service agent. Valid values: • 0: disabled • 1: enabled

Response parameters

Parameter	Type	Example	Description
RequestId	String	6673D49C-A9AB-40DD-B4A2-B92306701AE7	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=PauseClient
&Uuids=uuid-1211-sadsd-2131
&Value=1
&<Common request parameters>
```

Sample success responses

`XML` format

```
<PauseClientResponse>
  <requestId>6673D49C-A9AB-40DD-B4A2-B92306701AE7</requestId>
</PauseClientResponse>
```

`JSON` format

```
{
 "requestId": "6673D49C-A9AB-40DD-B4A2-B92306701AE7"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.2.6. Export check results

19.1.2.6.1. ExportRecord

Exports baseline check, asset fingerprint check, and AccessKey leak check results to Excel files.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ExportRecord	The operation that you want to perform. Set the value to **ExportRecord**.
ExportType	String	Yes	accessKey	The type of the check whose result can be exported. Valid values: • **baseline**: Alibaba Cloud service baseline • **assetInstance**: assets • **attack**: attack analysis • **accessKey**: AccessKey pair leaks • **user**: the accounts covered by asset fingerprints • **port**: the ports covered by asset fingerprints • **process**: the processes covered by asset fingerprints • **software**: the software covered by asset fingerprints
Lang	String	No	zh	The natural language of the request and response. Valid values: • **zh**: Chinese • **en**: English
Params	String	No	{"level":"high"}	The conditions to filter check results in the files to which the check results are exported.

Response parameters

Parameter	Type	Example	Description
FileName	String	cms_20171101.xlsx	The name of the exported file.
Id	Long	131231	The ID of the exported file.

Parameter	Type	Example	Description
RequestId	String	6673D49C-A9AB-40DD-B4A2-B92306701AE7	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=ExportRecord
&ExportType=accessKey
&<Common request parameters>
```

Sample success responses

`XML` format

```
<ExportRecordResponse>
  <Id>131231</Id>
  <FileName>cms_20171101.xlsx</FileName>
  <requestId>6673D49C-A9AB-40DD-B4A2-B92306701AE7</requestId>
</ExportRecordResponse>
```

`JSON` format

```
{
    "Id": 131231,
    "FileName" : "cms_20171101.xlsx",
    "requestId": "6673D49C-A9AB-40DD-B4A2-B92306701AE7"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.2.7. Virus detection

19.1.2.7.1. OperateSuspiciousTargetConfig

Configures virus detection.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	OperateSuspiciousTargetConfig	The operation that you want to perform. Set the value to **OperateSuspiciousTargetConfig**.
TargetOperations	String	Yes	"[{\"targetType\":\"uuid\",\"target\":\"0585f81a-dd84-4ddf-9971-f59d12345678\",\"flag\":\"add\"},{\"targetType\":\"uuid\",\"target\":\"01acfd9d-e6a4-4e61-b9eb-aae012345678\",\"flag\":\"add\"},{\"targetType\":\"uuid\",\"target\":\"04a0e735-ad32-4835-b635-045812345678\",\"flag\":\"add\"}]"	The parameters required to configure virus detection for the server. Set the following parameters: • **targetType**: the dimension on which viruses are blocked. UUIDs are supported. Set the value to uuid. • **target**: the UUID of the server on which you want to configure virus detection. • **flag**: enables or disables virus detection for the server. Valid values: **add** and **del**. add specifies to enable the feature and del specifies to disable the feature.
TargetType	String	Yes	uuid	The operating dimension on which you manage virus detection. You can manage virus detection only by UUID. Set the value to **uuid**.
Type	String	Yes	auto_breaking	The method of virus detection. Set the value to **auto_breaking**, which specifies that the system automatically blocks viruses.
SourceIp	String	No	1.2.3.4	The source IP address of the request.
Lang	String	No	zh	The natural language of the request and response. Valid values: • **zh**: Chinese • **en**: English

Response parameters

Parameter	Type	Example	Description
RequestId	String	ABCD-PSD2-5256-1DSA-4222-JHBN	The ID of the request.

Examples

Sample requests

```
http(s)://[Endpoint]/?Action=OperateSuspiciousTargetConfig
&TargetOperations="[{\"targetType\":\"uuid\",\"target\":\"0585f81a-dd84-4ddf-9971-f59d12345
678\",\"flag\":\"add\"},{\"targetType\":\"uuid\",\"target\":\"01acfd9d-e6a4-4e61-b9eb-aae01
2345678\",\"flag\":\"add\"},{\"targetType\":\"uuid\",\"target\":\"04a0e735-ad32-4835-b635-0
45812345678\",\"flag\":\"add\"}]"
&TargetType=uuid
&Type=auto_breaking
&<Common request parameters>
```

Sample success responses

`XML` format

```
<OperateSuspiciousTargetConfigResponse>
  <RequestId>ABCD-PSD2-5256-1DSA-4222-JHBN</RequestId>
</OperateSuspiciousTargetConfigResponse>
```

`JSON` format

```
{
    "RequestId":"ABCD-PSD2-5256-1DSA-4222-JHBN"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.3. Anti-DDoS

19.1.3.1. List of operations

This topic introduces all the Apsara Stack Security Anti-DDoS operations that you can call. For more information, see the corresponding operation description.

Operation	Description
CheckIpSegment	Checks whether a CIDR block to be added for monitoring is valid.

Operation	Description
DescribeRegionName	Queries the regions of the CIDR blocks where traffic data collection and analysis is performed.
CreateIpSegment	Adds a specified CIDR block to be monitored.
DescribeIpSegment	Obtains a list of CIDR blocks under traffic monitoring.
DeleteIpSegment	Deletes a CIDR block whose traffic is collected and monitored based on the CIDR block record ID.
ModifyIpSegment	Modifies a monitored CIDR block with a specified record ID.
CreateDdosPolicy	Adds an anti-DDoS policy for a specified IP address or CIDR block.
DescribeDdosPolicies	Queries the configured DDoS protection policies.
DeleteDdosPolicy	Deletes an anti-DDoS policy for a specified CIDR block.
ModifyDdosPolicy	Modifies a specified anti-DDoS policy.
DescribeBlockSwitchs	Queries the status of the traffic block switch in anti-DDoS.
ModifyBlockSwitchs	Changes the status of the block switch in DDoS settings.
DescribeDdosEvents	Obtains the list of DDoS events that meet the specified search criteria.
DescribeFlowAnalysisResult	Queries the analysis result of the traffic sent to an IP address.
DescribeFlowDetails	Queries the detailed traffic information for a specified IP address.
CancelCleanStatus	Disables DDoS traffic scrubbing for a specified IP address.
CreateWhiteList	Adds a whitelist of trusted IP addresses that are exempt from traffic security monitoring.
DescribeWhiteList	Queries the IP addresses that have been added to a whitelist.
DeleteWhiteList	Deletes multiple risks from the whitelist for baseline check.
DescribeConsoleDdosPolicies	Obtains the records of anti-DDoS policies, including the system default policies.

19.1.3.2. Make API requests

19.1.3.2.1. Request structure

Apsara Stack Security API is based on Remote Procedure Call (RPC). This topic describes the structure of the API requests.

Description

You can send an HTTP request to call an API operation. The URL of the request must be in the following format:

```
http://endpoint/?Action=xx&parameters
```

Where:

- `endpoint`: the endpoint used to call a cloud service. The endpoint for the Anti-DDoS service is `ddosprivate.[ RegionId].example.com`.
- `Action`: the operation that you want to perform.

  For example, you can set this parameter to DescribeFeatures to query the deployed Apsara Stack Security features.
- `parameters`: the request parameters. Request parameters include common request parameters and custom request parameters. Request parameters must be separated with ampersands (&).
  - Common request parameters include information such as the API version and authentication information.
  - For more information about the custom request parameters, see the corresponding operation description.

Example

Call the DescribeFeatures operation to query the deployed Apsara Stack Security features.

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeFeatures&AccessKeyId=key-test
&Format=JSON&SecureTransport=true&SignatureMethod=HMAC-SHA1&SignatureNonce=15215528852396&S
ignatureVersion=1.0&SourceIp=1xxxx6&Timestamp=2018-03-02Txxxxxxx&Version=2018-01-16&Signatu
re=xxxx%xxxx%3D
```

API requests are presented in the following easy-to-read format in this document:

```
https://yundunprivate.[ RegionId].example.com/?Action=DescribeFeatures
&Format=JSON
&Version=2018-01-16
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

19.1.3.2.2. Signature mechanism

Apsara Stack Security authenticates each access request. You need to include a signature for the submitted HTTP or HTTPS request.

API authorization

To ensure the security of your account, we recommend that you use a Resource Access Management (RAM) user to call API operations. Before using a RAM user to call an API operation, you must grant the RAM user the corresponding permission to call the API by creating an authorization policy and attaching the policy to the RAM user.

API signature

To ensure secure calls to the API, Alibaba Cloud authenticates each API request through the signature. When you manually make an API request, you need to use AccessKey Secret to calculate the signature, that is, the hash-based message authentication code (HMAC) value, based on the encoded and sorted request string. For more information, see the definition in RFC 2104.

This topic uses the raw access parameters in the following table to describe how to create an API signature.

Parameter	Description
Access point	`http://semawaf.[ RegionId].example.com/?`
API-specific parameters	`Action=DescribeFeatures`

Common parameters (excluding the Signature parameter)	`&Timestamp=2016-02-23T12:46:24Z`
	`&Format=JSON`
	`&AccessKeyId=<yourAccessKeyId>`
	`&SignatureMethod=HMAC-SHA1`
	`&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`
	`&Version=2018-01-16`
	`&SignatureVersion=1.0`

AccessKey secret	`<yourAccessKeySecret>`

1. Use the request parameters to construct a canonicalized query string.

   > **Note** The request parameters include common request parameters (excluding the Signature parameter) and API-specific parameters.

   i. Sort the parameters.

   Sort the request parameters in alphabetical order.

   ii. Encode the parameters.

   Use UTF-8 to URL-encode the parameter names and values. The encoding rules are as follows:

   - Letters, digits, hyphens (-), underscores (_), periods (.), and tildes (~) are not encoded.
   - Other characters are encoded in the %XY format, where XY is the hexadecimal representation of the character in ASCII. For example, the double quotation mark (") is encoded as %22.
   - Extended UTF-8 characters are encoded in the %XY%ZA... format.
   - Note that a space is encoded as %20, instead of a plus sign (+).

iii. Connect the encoded parameter names and values with equal signs (=).

iv. Then, sort the parameter name and value pairs connected by equal signs in alphabetical order, and connect them with ampersands (&) to produce the canonicalized query string.

2. Use the canonicalized query string to construct the string for signature calculation based on the following rules:

```
StringToSign=HTTPMethod + "&" + percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

3. Calculate the HMAC value of the StringToSign string according to the definition in RFC 2104.

> **Note** The key used for signature calculation is your AccessKey secret adding the ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the preceding HMAC value into a string based on Base64 encoding rules to obtain the signature value.

```
LEW8N4y7Uasop******
```

5. Set the Signature parameter in the request parameters to this signature value to sign the request.

19.1.3.2.3. Common request parameters

The following table describes the common request parameters that are used to indicate information such as the API version and authentication information.

Name	Type	Required	Description
Version	String	Yes	The API version in the format of YYYY-MM-DD. Set the value to *2018-01-16*.
AccessKeyId	String	Yes	The key ID that Alibaba Cloud assigns to a user for service access.
Signature	String	Yes	The signature string.
SignatureMethod	String	Yes	The signature method. Set the value to *HMAC-SHA1*.

Name	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. Follow the ISO 8601 standard to specify the date and use the offset from Coordinated Universal Time (UTC) to specify the time zone. The format is `YYYY-MM-DDThh:mm:ssZ`. For example, 2014-05-26T12:00:00Z indicates 20:00:00 on May 26, 2014, Beijing time.
SignatureVersion	String	Yes	The signature algorithm version. Set the value to *1.0*.
SignatureNonce	String	Yes	The unique random number used to prevent network replay attacks. You must use different random numbers for different requests.
ResourceOwnerAccount	String	No	The owner account of the resource to be accessed through this API request, that is, the logon username.
Format	String	No	The format of the response. Set the value to *JSON or XML*. **Note** Default value: XML.

19.1.3.2.4. Response structure

Apsara Stack Security API responses support both the XML and JSON formats. The system always returns a unique identification code RequestId each time you send a request to call an operation, no matter whether the call is successful or not.

Sample responses (XML format)

```
<? xml version="1.0" encoding="UTF-8"? >
<! -- The root node of the result -->
<Operation name+Response>
    <! -- Returned request ID -->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! -- Returned data -->
</Operation name+Response>
```

Sample responses (JSON format)

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Returned data */
}
```

19.1.3.3. APIs

19.1.3.3.1. CheckIpSegment

Description

You can call this operation to check whether a CIDR block to be added for monitoring is valid. If a success result is returned through this API, the CIDR block specified in the request can be added.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *CheckIpSegment*.
IpSegmentName	String	Yes	The CIDR block to be checked, in x.x.x.x/x format. For example, 172.21.23.222/24.
InfoType	String	No	The CIDR block information type. For example, a value of distribution indicates the region information.
InfoName	String	No	The information describing the CIDR block based on the value of the InfoType parameter. For example, if the InfoType parameter is set to distribution, you can set the InfoName parameter to DXJF, indicating that the CIDR block belongs to the region where the Daxing IDC is located.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=CheckIpSegment
&IpSegmentName=192.1.1.1/24
&InfoType=distribution
&InfoName=DXJF
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"71064826-726F-4ADA-B879-05D8055476FB"
}
```

19.1.3.3.2. DescribeRegionName

Description

You can call this operation to query the regions of the CIDR blocks where traffic data collection and analysis is performed.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DescribeRegionName*.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
RegionNameList	Array	A list of regions. For more information, see the following parameter descriptions.
Id	Integer	The ID of the region.
Description	String	The region of the CIDR block.
CodeType	String	The type of the CIDR block information. For example, distribution indicates the region information.

Name	Type	Description
Code	String	This parameter is used with the CodeType parameter to specify the code of the corresponding information. For example, if the CodeType parameter is set to distribution and the Code parameter is set to DXJF, this indicates that the CIDR block belongs to the region where the Daxing data center is located.
CodeName	String	This parameter is used with the CodeType parameter to specify the name of the corresponding information.
GmtCreate	String	The time when the CIDR block was created.
GmtModified	String	The latest time when the CIDR block was modified.
Seq	Integer	The sequence number of the region record.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeRegionName
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RegionNameList":[
  {
   "GmtCreate":1463367238000,
   "Description":"Hybrid cloud data center list",
   "CodeName":"Daxing data center",
   "GmtModified":1463367238000,
   "CodeType":"distribution",
   "Id":17,
   "Code":"am1",
   "Seq":1
  },
  {
   "GmtCreate":1463367238000,
   "Description":"Hybrid cloud data center list",
   "CodeName":"Not specified",
   "GmtModified":1463367238000,
   "CodeType":"distribution",
   "Id":32,
   "Code":"UNKNOWN",
   "Seq":4
  },
```

```
  {
   "GmtCreate":1485069049000,
   "Description": "Data center list",
   "CodeName":"Beijing data center",
   "GmtModified":1485069049000,
   "CodeType":"distribution",
   "Id":50,
   "RegionId": "cn-beijing-btc-a01",
   "Seq":2
  },
  {
   "GmtCreate":1485069106000,
   "Description": "Data center list",
   "CodeName":"Hangzhou data center",
   "GmtModified":1485069104000,
   "CodeType":"distribution",
   "Id":51,
   "Code":"cn-hangzhou-dg-a01",
   "Seq":3
  },
  {
   "GmtCreate":1463367238000,
   "Description":"Hybrid cloud data center list",
   "CodeName":"Daxing data center",
   "GmtModified":1463367238000,
   "CodeType":"distribution",
   "Id":52,
   "Code":"DD_DXJF",
   "Seq":1
  }
 ],
 "RequestId":"26738B34-6680-4BD7-BBF8-EF8DE53D52F6"
}
```


19.1.3.3.3. CreateIpSegment

Description

You can call this operation to add a specified CIDR block to be monitored.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *CreateIpSegment*.
IpSegmentName	String	Yes	The CIDR block to be added for monitoring, in x.x.x.x/x format. For example, 172.21.23.222/24.

Name	Type	Required	Description
InfoType	String	No	The CIDR block information type. For example, a value of distribution indicates the region information.
InfoName	String	No	The information describing the CIDR block based on the value of the InfoType parameter. For example, if the InfoType parameter is set to distribution, you can set the InfoName parameter to DXJF, indicating that the CIDR block belongs to the region where the Daxing data center is located.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=CreateIpSegment
&IpSegmentName=172.21.13.222/24
&InfoType=distribution
&InfoName=DXJF
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"6C91B447-DAA5-40DB-B818-E10820D99DEC"
}
```

19.1.3.3.4. DescribeIpSegment

Description

You can call this operation to query Classless Inter-Domain Routing (CIDR) blocks under traffic monitoring.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeIpSegment*.
CurrentPage	Integer	No	The number of the page to return.
PageSize	Integer	No	The number of records to return on each page.
InfoType	String	No	The type of the CIDR block information. For example, a value of distribution indicates the region information.
Distribution	String	No	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
IpSegment	String	No	The CIDR block, in x.x.x.x/x format.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
CurrentPage	Integer	The number of the current page returned.
PageSize	Integer	The number of records returned on each page.
TotalCount	Integer	The total number of returned pages.
IpSegmentList	Array	The CIDR blocks for traffic collection. For more information, see the following descriptions.
GmtCreate	Long	The time when the CIDR block for traffic collection was created.
GmtModified	Long	The time when the CIDR block for traffic collection was last modified.
Id	Integer	The ID of the CIDR block for traffic collection.
RegionName	String	The region name of the CIDR block.
InfoType	String	The type of the CIDR block information. For example, a value of distribution indicates the region information.

Parameter	Type	Description
InfoName	String	The information describing the CIDR block based on the value of the InfoType parameter. For example, if the value of the InfoType parameter is distribution, the value of the InfoName parameter can be DXJF, indicating that the CIDR block belongs to the region where the Daxing IDC is located.
IpExpressions	String	The CIDR block for traffic collection, in x.x.x.x/x format.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeIpSegment
&CurrentPage=1
&Distribution=DXJF
&InfoType=distribution
&IpSegment=x.x.x.x/x
&PageSize=20
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "TotalCount":1,
    "PageSize":20,
    "RequestId":"AC51224B-3730-4C6B-B444-2307C7F73E84",
    "IpSegmentList":[
        {
            "IpExpressions":"192.168.x.x/24",
            "GmtCreate":1520565939000,
            "RegionName":"Daxing IDC",
            "GmtModified":1520565939000,
            "InfoName":"****",
            "Id":9,
            "InfoType":"distribution1"
        }
    ],
    "CurrentPage":1
}
```

19.1.3.3.5. DeleteIpSegment

Description

You can call this operation to delete a CIDR block whose traffic is collected and monitored based on the CIDR block record ID.

> **Note** You must obtain the record ID of the monitored CIDR block to be deleted before calling this operation.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DeleteIpSegment*.
IpId	String	Yes	The record ID of the monitored CIDR block to be deleted.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=DeleteIpSegment
&IpId=1
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"9C40FE9D-EE39-4162-8E94-7C0A32F276D8"
}
```

19.1.3.3.6. ModifyIpSegment

Description

You can call this operation to modify a monitored Classless Inter-Domain Routing (CIDR) block with a specified record ID.

> **Note** You must know the record ID of the monitored CIDR block to be modified before calling this operation.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *ModifyIpSegment*.
IpId	Integer	Yes	The record ID of the monitored CIDR block to be modified.
InfoName	String	Yes	The region to which the CIDR block belongs. For example, a value of DXJF indicates that the CIDR block belongs to the region where the Daxing IDC is located.
IpSegmentName	String	Yes	The CIDR block, in x.x.x.x/x format.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=ModifyIpSegment
&InfoName=****
&InfoType=distribution
&IpId=11
&IpSegmentName=192.168.x.x/24
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"5FFE58AA-355B-4E0E-A742-0BB5554BA959"
}
```

19.1.3.3.7. CreateDdosPolicy

Description

You can call this operation to add an anti-DDoS policy for a specified IP address or Classless Inter-Domain Routing (CIDR) block.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *CreateDdosPolicy*.
ExternalServiceIP	String	Yes	The IP address or CIDR block to which the anti-DDoS policy applies, in x.x.x.x or x.x.x.x/x format.
FlowRate	Integer	Yes	The traffic rate threshold. Unit: Mbit/s. **Note** The value of this parameter must be greater than 0.
HttpRate	Integer	Yes	The HTTP request rate threshold. Unit: queries per second (QPS). **Note** The value of this parameter must be greater than 50.
PackageRate	Integer	Yes	The packet rate threshold. Unit: packets per second (PPS). **Note** The value of this parameter must be greater than 0.
UserId	Long	No	The user ID of the request sender. The parameter is automatically set by the system.
UserName	String	Yes	The username of the request sender. The parameter is automatically set by the system.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=CreateDdosPolicy
&ExternalServiceIP=192.168.x.x/32
&FlowRate=1
&HttpRate=60
&PackageRate=1
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"CA179B61-DD6D-4FE3-A410-CC16AC705DF4"
}
```

19.1.3.3.8. DescribeDdosPolicies

Description

You can call this operation to query the configured DDoS protection policies.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DescribeDdosPolicies*.
CurrentPage	Integer	No	The current page number.
PageSize	Integer	No	The maximum number of records displayed on a page.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
CurrentPage	Integer	The current page number.
PageSize	Integer	The maximum number of records displayed on a page.
TotalCount	Integer	The total number of pages returned.

Name	Type	Description
DdosPolicies	Array	A list of DDoS protection policies. For more information, see the following parameter descriptions.
Code	String	The region code of the CIDR block that the DDoS protection policy is applied to.
CodeName	String	The region name of the CIDR block that the DDoS protection policy is applied to.
DepartmentName	String	The department of the user AliUID that created the DDoS protection policy.
ExternalServiceIP	String	The IP address or CIDR block that the DDoS protection policy is applied to.
FlowRate	Integer	The bandwidth threshold. Unit: Mbit/s.
HttpRate	Integer	The HTTP request threshold. Unit: QPS.
PackageRate	Integer	The packet threshold. Unit: PPS.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeDdosPolicies
&CurrentPage=1
&PageSize=10
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
    "TotalCount":1,
    "PageSize": 10,
    "RequestId": "179E1AA9-1BC2-4A66-9E4B-1640EDDE7D1C",
    "CurrentPage": 1,
    "DdosPolicies": [
        {
            "PackageRate": 200,
            "HttpRate": 0,
            "CodeName":"Daxing data center",
            "ExternalServiceIP": "x.x.x.x/x",
            "DepartmentName": "Department 1",
            "Code": "DD_DXJF",
            "FlowRate": 900,
            "AliUid": 0
        }
    ]
}
```


19.1.3.3.9. DeleteDdosPolicy

Description

You can call this operation to delete an anti-DDoS policy for a specified Classless Inter-Domain Routing (CIDR) block.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DeleteDdosPolicy*.
RegionCode	String	Yes	The ID of the region. For example, cn-hangzhou-env6-d01.
ExternalServiceIP	String	Yes	The IP address or CIDR block to which the anti-DDoS policy applies, in x.x.x.x or x.x.x.x/x format.
FlowRate	Integer	No	The traffic rate threshold. Unit: Mbit/s. **Note** The value of this parameter must be greater than 0.

Parameter	Type	Required	Description
HttpRate	Integer	No	The HTTP request rate threshold. Unit: queries per second (QPS). **Note** The value of this parameter must be greater than 50.
PackageRate	Integer	No	The packet rate threshold. Unit: packets per second (PPS). **Note** The value of this parameter must be greater than 0.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DeleteDdosPolicy
&ExternalServiceIP=192.168.x.x/24
&RegionCode=cn-****-env6-d01
&FlowRate=55
&HttpRate=55
&PackageRate=55
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"8C9B8735-18BA-451B-AE9D-1428554CA360"
}
```

19.1.3.3.10. ModifyDdosPolicy

Description

You can call this operation to modify a specified anti-DDoS policy.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *ModifyDdosPolicy*.
Distribution	String	Yes	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
ExternalServiceIP	String	Yes	The IP address or Classless Inter-Domain Routing (CIDR) block to which the anti-DDoS policy applies, in x.x.x.x or x.x.x.x/x format.
FlowRate	Integer	Yes	The traffic rate threshold. Unit: Mbit/s. **Note** The value of this parameter must be greater than 0.
HttpRate	Integer	Yes	The HTTP request rate threshold. Unit: queries per second (QPS). **Note** The value of this parameter must be greater than 50.
PackageRate	Integer	Yes	The packet rate threshold. Unit: packets per second (PPS). **Note** The value of this parameter must be greater than 0.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=ModifyDdosPolicy
&Distribution=****
&ExternalServiceIP=192.168.x.x/32
&FlowRate=1
&HttpRate=60
&PackageRate=1
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"CA179B61-DD6D-4FE3-A410-CC16AC705DF4"
}
```

19.1.3.3.11. DescribeBlockSwitchs

Description

You can call this operation to query the status of the traffic block switch in anti-DDoS.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DescribeBlockSwitchs*.
CurrentPage	Integer	No	The current page number.
PageSize	Integer	No	The maximum number of records displayed on a page.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
CurrentPage	Integer	The current page number.
PageSize	Integer	The maximum number of records displayed on a page.
TotalCount	Integer	The total number of pages returned.
BlockSwitchs	Array	The traffic block switch information. For more information, see the following parameter descriptions.

Name	Type	Description
Code	String	The code of the block switch, which uniquely identifies a block switch.
Description	String	The brief description of the block switch.
Id	Integer	The ID of the block switch.
Mode	Integer	The status of the block switch. Valid values: • *0*: indicates disabled. • *1*: indicates enabled.
ModeName	String	The status name of the block switch. Valid values: • *Disabled* • *Enabled*
Name	String	The name of the block switch.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeBlockSwitchs
&CurrentPage=1
&PageSize=20
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "PageSize": 10,
 "RequestId":"95F2F4C8-7623-48B7-A976-30B48F3A25EB",
 "CurrentPage":1,
 "BlockSwitchs":[
  {
   "Description": "test",
   "Mode":0,
   "ModeName":"Disabled",
   "id": 1,
   "Code":"UPGRADE_SWITCH",
   "Name":"Upgrade channel switch"
  },
  {
   "Description":"Automatic upgrade switch",
   "Mode":1,
   "ModeName":"Enabled",
   "Id":2,
   "Code":"AUTO_UPGRADE_SWITH",
   "Name":"Automatic upgrade switch"
  }
 ]
}
```


19.1.3.3.12. ModifyBlockSwitchs

Description

You can call this operation to change the status of the block switch in DDoS settings.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *ModifyBlockSwitch*.
Id	Integer	Yes	The ID of the block switch.
Mode	Integer	Yes	The status of the block switch. Valid values: • *0*: indicates disabled. • *1*: indicates enabled.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=ModifyBlockSwitch
&Id=1
&Mode=1
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"B7FA97F0-082D-4611-A3C4-867011E2A106"
}
```

19.1.3.3.13. DescribeDdosEvents

Description

You can call this operation to query distributed denial of service (DDoS) events that meet the specified search criteria.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeDdosEvents*.
CurrentPage	Integer	No	The number of the page to return.
PageSize	Integer	No	The number of records to return on each page.
StartRow	Integer	No	The sequence number of the first record to return on the current page.
Distribution	String	No	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
VmIP	String	No	The IP address of the victim server.
StartDay	Long	No	The beginning of the time range where data is queried.
EndDay	Long	No	The end of the time range where data is queried.

Parameter	Type	Required	Description
SearchReason	String	No	The reason why the DDoS event is triggered. Valid values: *bps*, *pps*, and *qps*. You can query events triggered by multiple reasons. For example, you can enter "bps,pps" to query the DDoS events that are triggered when the traffic rate threshold or the packet transmission rate threshold is exceeded.
SelectStatus	String	No	The status of the DDoS event. Valid values: • *Scrubbing* • *Scrubbing completed*

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
CurrentPage	Integer	The number of the current page returned.
PageSize	Integer	The number of records returned on each page.
TotalCount	Integer	The total number of returned pages.
DdosEvents	Array	The DDoS events. For more information, see the following descriptions.
Id	Long	The ID of the event.
GmtCreate	Long	The time when the event was created.
GmtModified	Long	The time when the event was updated.
Aliuid	Long	The AliUid of the asset owner.
AttackType	String	The type of the attack. **Note** In the current version, only the value of *defence* is supported.

Parameter	Type	Description
Caller	String	The name of the system that calls the operation. **Note** Currently, the fixed value is *beaver_dj*, indicating Network Traffic Monitoring System.
Category	Integer	The number of the security event category.
CategoryName	String	The name of the security event category.
VmIp	String	The IP address of the victim server.
Code	String	The scrubbing status of the event. Valid values: • *Scrubbing* • *Scrubbing completed*
Bps	Long	The traffic rate threshold. Unit: Mbit/s.
Pps	Long	The packet rate threshold. Unit: packets per second (PPS).
Qps	Long	The HTTP request rate threshold. Unit: queries per second (QPS).
Conn	Integer	The threshold of concurrent connections. **Note** This response parameter has been deprecated.
NewConn	Integer	The threshold of new connections. **Note** This response parameter has been deprecated.
Reason	String	The reason why the event was reported.
Distribution	String	The ID of the region.
DistributionDisplay	String	The name of the region.

Parameter	Type	Description
IsFinished	Boolean	Indicates whether the attack has finished. Valid values: • *true*: indicates that the attack has finished. • *false*: indicates that the attack has not finished.
OccurrenceTime	Long	The time when the event occurred.
EndTime	Long	The time when the attack finished.
LocationAdd	String	The location where the event was added. **Note** This response parameter is invalid in Apsara Stack.
LocationDel	String	The location where the event was canceled. **Note** This response parameter is invalid in Apsara Stack.
Status	Integer	The status of the IP address where the DDoS event occurred. Valid values: • *0*: indicates that the IP address has not expired. • *1*: indicates that the IP address has expired.
Successful	Integer	Indicates whether the attack succeeds. Valid values: • *0*: indicates that the attack has failed. • *1*: indicates that the attack succeeded.
NeedIgnore	Integer	Indicates whether you need to ignore the event. Valid values: • *0*: indicates that you do not need to ignore the event. • *1*: indicates that the event has been reported repeatedly and you need to ignore the event.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeDdosEvents
&CurrentPage=1
&Distribution=DXJF
$StartDay=1381079107176
$EndDay=1481079107176
&PageSize=10
&<Common request parameters>
```

- Sample response (JSON format)

```
{
 "TotalCount":1,
 "RequestId":"AD525B06-F5F7-4319-94F4-45154D5B0750",
 "DdosEvents":[
  {
   "NewConn":0,
   "Status":0,
   "LocationDel":"nulllocal",
   "Category":21,
   "Bps":5,
   "EndTime":1573233588000,
   "Zone":"default",
   "GmtModified":1484372333000,
   "AttackType":"0",
   "Conn":0,
   "Code":"Scrubbing",
   "DistributionDisplay":"Daxing IDC",
   "Reason":"bps",
   "OccurrenceTime":1473233588000,
   "GmtCreate":1484369068000,
   "Pps":450,
   "Caller":"beaver_dj",
   "Qps":0,
   "Distribution":"am1",
   "LocationAdd":"local",
   "CategoryName":"DDOS_DEFENSE",
   "Id":3,
   "IsFinished":false,
   "NeedIgnore":0
  }
 ],
 "CurrentPage":1
}
```

19.1.3.3.14. DescribeFlowAnalysisResult

Description

You can call this operation to query the analysis result of the traffic sent to an IP address.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeFlowAnalysisResult*.
Distribution	String	Yes	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
VmIP	String	Yes	The IP address of the victim server.
StartDate	Long	Yes	The beginning of the time range where traffic is analyzed.
SearchReason	String	No	The reason why the distributed denial of service (DDoS) event is triggered. Valid values: *bps*, *pps*, and *qps*. You can query events triggered by multiple reasons. For example, you can enter "bps,pps" to query the DDoS events that are triggered when the traffic rate threshold or the packet transmission rate threshold is exceeded.
SelectStatus	String	No	The status of the DDoS event. Valid values: • *Scrubbing* • *Scrubbing completed*

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
TopAttackers	Array	The analysis on the top 10 attackers. For more information, see the following descriptions.
Ip	String	The IP address of the attacker.
Count	Float	The percentage of attacks launched to the IP address compared to the total attacks.

Parameter	Type	Description
TopProtocols	Array	The analysis on the composition of the attack traffic. For more information, see the following descriptions. **Note** The traffic composition analysis shows traffic of different protocols, including TCP, ICMP, and UDP.
Protocol	String	The protocol.
Count	Float	The percentage of the traffic of the specified protocol compared to the total amount of traffic.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeFlowAnalysisResult
&Distribution=DD_DXJF
&startDate=123123312000
&VmIp=x.x.x.x
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "TopAttackers":["Ip":"x.x.x.x","Count":"1.00"],
    "RequestId":"B2488F1F-930D-4906-AC76-61045B4F1EF2",
    "TopProtocols":["Protocol":"tcp","Count":"1.00"]
}
```

19.1.3.3.15. DescribeFlowDetails

Description

You can call this operation to query the detailed traffic information for a specified IP address.

Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeFlowDetails*.
Distribution	String	Yes	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
VmIP	String	Yes	The IP address of the victim server.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
HttpStatusCode	Integer	The HTTP status code.
FlowDetail	Struct	The detailed traffic information. For more information, see the following descriptions.
AliUid	Long	The ID of the Alibaba Cloud account.
Distribution	String	The ID of the region.
DistributionDisplay	String	The name of the region.
ExternalServiceIp	String	The IP address or Classless Inter-Domain Routing (CIDR) block.
FlowRate	Integer	The flow rate. Unit: Mbit/s.
HttpRate	Integer	The HTTP request rate. Unit: queries per second (QPS).
PackageRate	Integer	The packet rate. Unit: packets per second (PPS).

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeFlowDetails
&Distribution=****
&VmIp=10.0.x.x
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"8491DBFD-48C0-4E11-B6FC-6F38921244A9",
    "FlowDetail":{
        "PackageRate":200,
        "HttpRate":0,
        "ExternalServiceIP":"10.0.x.x/32",
        "Distribution":"DXJF",
        "DistributionDisplay":"Daxing IDC",
        "FlowRate":900,
        "AliUid":0
    },
    "HttpStatusCode":200
}
```

19.1.3.3.16. CancelCleanStatus

Description

You can call this operation to disable DDoS traffic scrubbing for a specified IP address.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *CancelCleanStatus*.
Distribution	String	Yes	The ID of the region. For example, a value of DXJF indicates the region where the Daxing IDC is located.
VmIp	String	Yes	The IP address of the instance, in x.x.x.x format.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=CancelCleanStatus
&Distribution=DXJF
&SourceIp=10.0.x.x
&VmIp=172.16.x.x
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"208B016D-4CB9-4A85-96A5-0B8ED1EBF271"
}
```

19.1.3.3.17. CreateWhiteList

Description

You can call this operation to add a whitelist of trusted IP addresses that are exempt from traffic security monitoring.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *CreateWhiteList*.
Type	Integer	Yes	The type of the whitelist. Valid values: • *6*: indicates a server brute-force attack whitelist. • *12*: indicates a BWAF source IP address whitelist. • *15*: indicates an application attack whitelist.
Username	String	No	The username used to add the whitelist.
DestinationIp	String	No	The destination IP address. **Note** When you add a BWAF source IP address whitelist (that is, the Type parameter is set to 12), the DestinationIp parameter must be set to the default value 0.0.0.0.
SourceIpStr	String	No	The source IP address.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=CreateWhiteList
&Type=15
&DestinationIp=192.168.xx.xx
&SourceIpStr=192.168.xx.xx
&Username=test
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "RequestId":"208B016D-4CB9-4A85-96A5-0B8ED1EBF271"
}
```

19.1.3.3.18. DescribeWhiteList

Description

You can call this operation to query the IP addresses that have been added to a whitelist.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeWhiteList*.
DestinationIp	String	No	The destination IP address.
SourceIpStr	String	No	The source IP address.

Parameter	Type	Required	Description
Type	Integer	No	The type of the whitelist. Valid values: • *6*: indicates a server brute-force attack whitelist. • *12*: indicates a BWAF source IP address whitelist. • *15*: indicates an application attack whitelist.
Username	String	No	The username.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
CurrentPage	Integer	The number of the current page returned.
PageSize	Integer	The number of records returned on each page.
TotalCount	Integer	The total number of returned pages.
WhiteLists	List	The whitelist records. For more information, see the following descriptions.
SourceIp	String	The source IP address.
Id	Integer	The ID of the whitelist record.
Type	Integer	The type of the whitelist. Valid values: • *6*: indicates a server brute-force attack whitelist. • *12*: indicates a BWAF source IP address whitelist. • *15*: indicates an application attack whitelist.
Username	String	The username.
DestinationIp	String	The destination IP address.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeWhiteList
&Type=15
&DestinationIp=172.16.xx.xx
&SourceIpStr=172.17.xx.xx
&Username=test
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "CurrentPage":1,
    "PageSize":20,
    "RequestId":"430A3687-B9EC-4F71-B472-EE24ED609863",
    "Success":true,
    "TotalCount":0,
    "WhiteLists":[{
        "DestinationIp":"172.16.xx.xx",
        "Id":6,
        "SourceIp":"172.17.xx.xx",
        "Type":15,
        "Username":"****"
    }]
}
```

19.1.3.3.19. DeleteWhiteList

Description

You can call this operation to delete a specified whitelist entry.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to *DeleteWhiteList*.
Id	Integer	Yes	The ID of the whitelist entry.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample requests

```
https://ddosprivate.[ RegionId].example.com/?Action=DeleteWhiteList
&Id=15
&<Common request parameters>
```

- Sample responses (JSON format)

```
{
 "RequestId":"208B016D-4CB9-4A85-96A5-0B8ED1EBF271"
}
```

19.1.3.3.20. DescribeConsoleDdosPolicies

Description

You can call this operation to obtain the records of anti-DDoS policies, including the system default policies.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this parameter to *DescribeConsoleDdosPolicies*.
AliUid	Long	Yes	The ID of the Alibaba Cloud account.
CurrentPage	Integer	No	The number of the page to return.
PageSize	Integer	No	The number of records to return on each page.
StartRow	Integer	No	The start row to return.

Response parameters

Parameter	Type	Description
RequestId	String	The ID of the request.
CurrentPage	Integer	The number of the current page returned.
PageSize	Integer	The number of records returned on each page.
TotalCount	Integer	The total number of returned pages.
ThresholdList	List	The anti-DDoS policies. For more information, see the following descriptions.
DepartmentName	String	The department name of the current user.

Parameter	Type	Description
ExternalServiceIP	String	The IP address or Classless Inter-Domain Routing (CIDR) block. **Note** A value of default is returned if the system default policy is used.
Code	String	The IDC ID corresponding to the CIDR block.
CodeName	Sting	The IDC name corresponding to the CIDR block.
FlowRate	Integer	The threshold for the traffic rate. Unit: Mbit/s.
HttpRate	Integer	The threshold for the HTTP request rate. Unit: queries per second (QPS).
PackageRate	Integer	The threshold for the packet rate. Unit: packets per second (PPS).
AliUid	Long	The Alibaba Cloud account ID corresponding to the policy.

Error codes

For more information about the error codes that this operation can return, see Error codes.

Examples

- Sample request

```
https://ddosprivate.[ RegionId].example.com/?Action=DescribeConsoleDdosPolicies
&AliUid=****
&CurrentPage=1
&PageSize=10
&SourceIp=xx.xx.xx.xx
&<Common request parameters>
```

- Sample response (JSON format)

```
{
    "CurrentPage":1,
    "HttpStatusCode":200,
    "PageSize":20,
    "RequestId":"7C3AC882-E5A8-4855-BE77-B6837B695EF1",
    "ThresholdList":[
        {
            "AliUid":151971404963****,
            "Code":"DD_DXJF",
            "CodeName":"DD_DXJF",
            "DepartmentName":"****Cloud",
            "ExternalServiceIP":"1.1.xx.xx/32",
            "FlowRate":1,
            "HttpRate":52,
            "PackageRate":1
        },
        {
            "AliUid":151971404963****,
            "Code":"DD_DXJF",
            "CodeName":"DD_DXJF",
            "DepartmentName":"****Cloud",
            "ExternalServiceIP":"2.2.xx.xx/32",
            "FlowRate":1,
            "HttpRate":51,
            "PackageRate":1
        },
        {
            "AliUid":-1,
            "Code":"DD_DXJF",
            "CodeName":"DD_DXJF",
            "ExternalServiceIP":"default",
            "FlowRate":900,
            "HttpRate":0,
            "PackageRate":200
        }
    ],
    "TotalCount":3
}
```


19.1.4. Web Application Firewall

19.1.4.1. List of operations by function

The following tables list API operations available for use in Web Application Firewall (WAF).

Website protection

Operation	Description
DescribeWebsite	Queries the information about the websites that are protected by WAF.

Operation	Description
CreateWebsite	Adds a website.
EditWebsite	Modifies the information about a specific website.
ToggleWebsite	Enables or disables WAF protection for a specific website.
QueryAsyncTaskStatus	Queries the status of an asynchronous task.
UploadResponsePage	Uploads a response page file.
DescribeInvalidWebsite	Queries the information about the invalid websites that are discovered by the upgrade detection feature.
DeleteInvalidWebsite	Deletes a specific invalid website.
DescribeInternetVip	Queries the information about the virtual IP addresses (VIPs) on the Internet.
CreateInternetVip	Creates a VIP on the Internet.
DeleteInternetVip	Deletes a VIP on the Internet.
DescribeVpc	Queries the information about virtual private clouds (VPCs).
DescribeVSwitch	Queries the information about the vSwitches in a specific VPC.
DescribeVpcVip	Queries the information about the VIPs in a specific VPC.
CreateVpcVip	Creates a VIP in a specific VPC.
DeleteVpcVip	Deletes a VIP in a specific VPC.
DescribeEcs	Queries the information about the Elastic Compute Service (ECS) instances in a specific VPC.
DescribeSlb	Queries the information about the Server Load Balancer (SLB) instances in a specific VPC.

HTTP flood protection rules

Operation	Description
DescribeCCRuleTemplate	Queries the information about HTTP flood protection rules.
CreateCCRuleTemplate	Creates an HTTP flood protection rule.
EditCCRuleTemplate	Modifies a specific HTTP flood protection rule.
ToggleCCRuleTemplate	Enables or disables a specific HTTP flood protection rule.
DeleteCCRuleTemplate	Deletes a specific HTTP flood protection rule.

Operation	Description
ClearCCRestrictionList	Removes the restricted users in a specific HTTP flood protection rule.
DescribeCCWhitelist	Queries the information about HTTP flood protection whitelists.
CreateCCWhitelist	Creates an HTTP flood protection whitelist.
DeleteCCWhitelist	Deletes a specific HTTP flood protection whitelist.

Custom rules

Operation	Description
DescribePolicyRule	Queries the information about custom rules.
CreatePolicyRule	Creates a custom rule to deny, allow, or monitor requests.
EditPolicyRule	Modifies a specific custom rule.
TogglePolicyRule	Enables or disables a specific custom rule.
DeletePolicyRule	Deletes a specific custom rule.
EditPolicyRulePriority	Modifies the priorities of custom rules for a specific website. The rules in PolicyRuleIdList are prioritized in descending order.
GenerateFalsePositiveRuleCorrection	Generates correction rules based on false positives.
CreateDetectionModuleRule	Creates a rule for detection module control.
EditDetectionModuleRule	Modifies a specific rule for detection module control.
EditPolicyRuleWebsiteBinding	Modifies the binding relationship between a specific website and its custom rules.
DeletePolicyRuleWebsiteBinding	Deletes the binding relationship between a specific website and specific custom rules.

Protection policies

Operation	Description
DescribePolicyGroup	Queries the information about protection policies.
CreatePolicyGroup	Creates a protection policy.
EditPolicyGroup	Modifies a specific protection policy.
DeletePolicyGroup	Deletes a specific protection policy.

Protection logs

Operation	Description
QueryAsyncTaskStatus	Queries the status of an asynchronous task.
QueryAttackDetectionLog	Queries attack detection logs.
QueryAttackDetectionDetailLog	Queries the details of a specific attack detection log.
QueryAuditLog	Queries system operations logs.
QueryCCRuleExecutionLog	Queries the logs on the execution of HTTP flood protection rules.
QueryFullAccessLog	Queries full access logs.
QueryFullAccessDetailLog	Queries the details of a specific full access log.
QueryPerformanceStatistics	Queries historical performance data.

SSL certificate management

Operation	Description
DescribeSSLCert	Queries the information about SSL certificates.
UploadSSLCert	Uploads an SSL certificate.
EditSSLCert	Modifies the name of a specific SSL certificate.
DeleteSSLCert	Deletes a specific SSL certificate.

System information

Operation	Description
DescribeMetrics	Queries the monitoring metrics of physical WAF nodes.
DescribeNodeStatus	Queries the status information about physical WAF nodes.
DescribeRealTimeAccess	Queries the monitoring information about access status.
DescribeAttackDetectionAggregation	Queries the statistics on attack detection aggregation.
DescribeAttackDetectionAggregationConfig	Queries the configurations of attack detection aggregation.
ToggleAttackDetectionAggregation	Enables or disables the attack detection aggregation feature.

19.1.4.2. Make API requests

19.1.4.2.1. Request structure

Apsara Stack Security API operations use the RPC protocol. This topic describes the structure of API requests.

Description

You can call Apsara Stack Security API operations by sending HTTP requests. The request syntax is as follows:

```
http://endpoint/?Action=xx&parameters
```

where:

- `endpoint`: the endpoint of the Threat Detection Service API is `semawaf.[ RegionId].example.com`.
- `Action`: the name of the operation being performed.

  For example, to query the Apsara Stack Security features that are deployed, you must set the Action parameter to DescribeFeatures.
- `parameters`: the request parameters for the operation. Separate multiple parameters with ampersands (&). Request parameters include both common parameters and operation-specific parameters.
  - Common parameters include information such as the API version and identity authentication.
  - For more information about operation-specific parameters, see the corresponding operation description.

Example

The following example demonstrates how to call the DescribeFeatures operation to query the Apsara Stack Security features that are deployed:

```
https://semawaf.[RegionId].example.com/?Action=DescribeFeatures&AccessKeyId=key-test&Format=JSON&SecureTransport=true&SignatureMethod=HMAC-SHA1&SignatureNonce=15215528852396&SignatureVersion=1.0&SourceIp=1xxxx6&Timestamp=2018-03-02Txxxxxxx&Version=2018-01-16&Signature=xxxx%xxxx%3D
```

API requests are presented in the following easy-to-read format in this document:

```
https://semawaf.[RegionId].example.com/?Action=DescribeFeatures
&Format=JSON
&Version=2018-01-16
&Signature=xxxx%xxxx%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
```

19.1.4.2.2. Request signatures

Apsara Stack Security authenticates each access request. You need to include a signature for the submitted HTTP or HTTPS request.

Authorization

To ensure the security of your account, we recommend that you use a Resource Access Management (RAM) user to call operations. Before you use a RAM user to call an API operation, you must grant the RAM user the corresponding permission to call the operation by creating an authorization policy and attaching the policy to the RAM user.

Signature

You must sign all API requests to ensure security. Alibaba Cloud uses the request signature to verify the identity of the API caller. When you manually make an API request, you need to use the AccessKey Secret to calculate the signature, that is, the hash-based message authentication code (HMAC) value, based on the encoded and sorted request string. For more information, see the definition in RFC 2104.

This section uses the raw access parameters in the following table to describe how to create an operation signature.

Parameter	Description
Access point	`http://tds.[ RegionId].example.com/?`
Operation-specific parameters	`Action=DescribeFeatures`

Common parameters except Signature	`&Timestamp=2018-12-24T12:46:24Z`
	`&Format=JSON`
	`&AccessKeyId=<yourAccessKeyId>`
	`&SignatureMethod=HMAC-SHA1`
	`&SignatureNonce=3ee8c1b8-83d3-44af-a94f-4e0ad82fd6cf`
	`&Version=2018-12-03`
	`&SignatureVersion=1.0`

AccessKey Secret	`<yourAccessKeySecret>`

1. Create a canonicalized query string by arranging the request parameters.

   > **Note** The request parameters include operation-specific parameters and all common request parameters except Signature.

   i. Sort the parameters.

   Sort the request parameters in alphabetical order.

ii. Encode the parameters.

Use UTF-8 to URL-encode the parameter names and values. The encoding rules are as follows:

- Uppercase letters, lowercase letters, digits, and some special characters such as hyphens (-), underscores (_), periods (.), and tildes (~) do not need to be encoded.
- Other characters must be percent encoded in %XY format. XY represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (") are encoded as %22.
- Extended UTF-8 characters are encoded in %XY%ZA... format.
- Spaces must be encoded as %20. Do not encode spaces as plus signs (+).

iii. Connect the encoded parameter names and values with equal signs (=).

iv. Then, sort the parameter name and value pairs connected by equal signs in alphabetical order. Connect them with ampersands (&) to canonicalize a query string.

2. Use the canonicalized query string to construct the string for signature calculation based on the following rules:

```
StringToSign=HTTPMethod + "&" + percentEncode("/") + "&" +
percentEncode(CanonicalizedQueryString)
```

3. Calculate the HMAC value of the StringToSign based on the definition in RFC 2104.

> **Note** The key used for signature calculation is your AccessKey Secret jointed with an ampersand (&) (ASCII 38). Secure Hash Algorithm 1 (SHA1) is used as the hash algorithm.

4. Encode the HMAC value in Base64 to obtain the signature string.

```
LEW8N4y7Uasop******
```

5. Add the signature string to the request as the Signature parameter.

19.1.4.2.3. Common request parameters

The following table describes the common request parameters that are used to indicate information such as the API version and authentication information.

Name	Type	Required	Description
Version	String	Yes	The API version in the format of YYYY-MM-DD. Set the value to *2018-01-16*.
AccessKeyId	String	Yes	The key ID that Alibaba Cloud assigns to a user for service access.
Signature	String	Yes	The signature string.
SignatureMethod	String	Yes	The signature method. Set the value to *HMAC-SHA1*.

Name	Type	Required	Description
Timestamp	String	Yes	The timestamp of the request. Follow the ISO 8601 standard to specify the date and use the offset from Coordinated Universal Time (UTC) to specify the time zone. The format is `YYYY-MM-DDThh:mm:ssZ`. For example, 2014-05-26T12:00:00Z indicates 20:00:00 on May 26, 2014, Beijing time.
SignatureVersion	String	Yes	The signature algorithm version. Set the value to *1.0*.
SignatureNonce	String	Yes	The unique random number used to prevent network replay attacks. You must use different random numbers for different requests.
ResourceOwnerAccount	String	No	The owner account of the resource to be accessed through this API request, that is, the logon username.
Format	String	No	The format of the response. Set the value to *JSON or XML*. **Note** Default value: XML.

19.1.4.2.4. Response structure

Apsara Stack Security API responses support both the XML and JSON formats. The system always returns a unique identification code RequestId each time you send a request to call an operation, no matter whether the call is successful or not.

Sample responses (XML format)

```
<? xml version="1.0" encoding="UTF-8"? >
<! -- The root node of the result -->
<Operation name+Response>
    <! -- Returned request ID -->
    <RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
    <! -- Returned data -->
</Operation name+Response>
```

Sample responses (JSON format)

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Returned data */
}
```

19.1.4.3. Website protection

19.1.4.3.1. DescribeWebsite

Queries the information about the websites that are protected by WAF.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeWebsite	The operation that you want to perform. Set the value to DescribeWebsite.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the website.
PageSize	Integer	No	20	The number of entries to return on each page. Default value: 10.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
IsVpcWebsite	Boolean	No	true	Specifies whether the websites to query are in a virtual private cloud (VPC). Default value: **false**. Valid values: • **true** • **false**
WebsiteNameFilter	RepeatList	No	["website-1", "website-2"]	The name of the website to query. You can enter multiple names.
ServerNameFilter	RepeatList	No	["www.taobao.com", "www.aliyun.com"]	The domain name of the website to query. You can enter multiple domain names.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"items": [{"id": 1, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "policy_rules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_balance_policy": "Round Robin", "servers": [{"protocol": "http", "attr": "slb", "host": "192.168.XX.XX", "port": 80, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [], "health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "port": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_ssl_ciphers": ""}, "vpc": "vpc-tx9isq1jrry8k3h9q****", "vpc_name": "tongquesingle****", "vip": ["42.36.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_website": false, "operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_names": ["www.taobao.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.taobao.com", "create_time": "1594371049", "last_update_time": "1594374794", "is_enabled": false, "detector_ip_source": ["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_enabled": true, "log_request_header": false, "log_response_header": false, "log_request_body": false, "log_payload": false, "log_dest_ip": true, "is_enable_full_access_log": false, "log_src_port": true, "log_event_id": true, "log_proxy_name": true}, "proxy_bind_config": {"enable": false, "hash_select_ip_method": "remote_addr_and_port", "proxy_bind_ip_list": null}, "remark": "", "ssl_cert": null, "policy_group": 6}], "total": 1}	The information about the websites.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeWebsite
&RegionId=cn-hangzhou
&Id=1
&PageSize=20
&PageNumber=1
&IsVpcWebsite=true
&WebsiteNameFilter.1=website-1
&ServerNameFilter.1=www.taobao.com
```

Sample success responses

`XML` format

```
<DescribeWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"id": 1, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "p
olicy_rules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_bala
nce_policy": "Round Robin", "servers": [{"protocol": "http", "attr": "slb", "host": "192.16
8.XX.XX", "port": 80, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [
], "health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "ht
tp_3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "
port": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_s
sl_ciphers": ""}, "vpc": "vpc-tx9isq1jrry8k3h9q****", "vpc_name": "tongquesingletunnel", "v
ip": ["42.36.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_websit
e": false, "operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_name
s": ["www.taobao.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.taobao.com", "
create_time": "1594371049", "last_update_time": "1594374794", "is_enabled": false, "detecto
r_ip_source": ["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_en
abled": true, "log_request_header": false, "log_response_header": false, "log_request_body"
: false, "log_payload": false, "log_dest_ip": true, "is_enable_full_access_log": false, "lo
g_src_port": true, "log_event_id": true, "log_proxy_name": true}, "proxy_bind_config": {"en
able": false, "hash_select_ip_method": "remote_addr_and_port", "proxy_bind_ip_list": null},
"remark": "", "ssl_cert": null, "policy_group": 6}], "total": 1}</Result>
</DescribeWebsiteResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"id\": 1, \"ip\": [\"0.0.XX.XX\"], \"session_method\": {\"type\"
: \"off\"}, \"policy_rules\": [], \"health_check_status\": \"\", \"backend_config\": {\"typ
e\": \"proxy\", \"load_balance_policy\": \"Round Robin\", \"servers\": [{\"protocol\": \"ht
tp\", \"attr\": \"slb\", \"host\": \"192.168.XX.XX\", \"port\": 80, \"weight\": 1}], \"x_fo
rwarded_for_action\": \"append\", \"header_config\": [], \"health_check_config\": {\"is_ena
bled\": false, \"check_http_expect_alive\": [\"http_2xx\", \"http_3xx\"], \"check_type\": \
"http\", \"interval\": 30000, \"fall\": 5, \"rise\": 2, \"timeout\": 1000, \"port\": null,
\"host\": \"\", \"method\": \"GET\", \"path\": \"/\"}, \"proxy_ssl_protocols\": [], \"proxy
_ssl_ciphers\": \"\"}, \"vpc\": \"vpc-tx9isq1jrry8k3h9q****\", \"vpc_name\": \"tongquesingl
etunnel\", \"vip\": [\"42.36.XX.XX\"], \"ports\": [{\"port\": 80, \"ssl\": false, \"http2\"
: false}], \"is_vpc_website\": false, \"operation_mode\": \"Software Reverse Proxy\", \"int
erface\": \"virtual\", \"server_names\": [\"www.taobao.com\"], \"ssl_protocols\": [], \"ssl
_ciphers\": \"\", \"name\": \"www.taobao.com\", \"create_time\": \"1594371049\", \"last_upd
ate_time\": \"1594374794\", \"is_enabled\": false, \"detector_ip_source\": [\"Socket\"], \"
proxy_ip_list\": [], \"proxy_ip_groups\": [], \"access_log\": {\"is_enabled\": true, \"log_
request_header\": false, \"log_response_header\": false, \"log_request_body\": false, \"log
_payload\": false, \"log_dest_ip\": true, \"is_enable_full_access_log\": false, \"log_src_p
ort\": true, \"log_event_id\": true, \"log_proxy_name\": true}, \"proxy_bind_config\": {\"e
nable\": false, \"hash_select_ip_method\": \"remote_addr_and_port\", \"proxy_bind_ip_list\"
: null}, \"remark\": \"\", \"ssl_cert\": null, \"policy_group\": 6}], \"total\": 1}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.3.2. CreateWebsite

Adds a website.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateWebsite	The operation that you want to perform. Set the value to CreateWebsite.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Name	String	Yes	test-website-1	The name of the website.
ServerNameList	RepeatList	Yes	["www.aliyun.com", "www.taobao.com"]	The domain name of the website. You can enter multiple domain names.

Parameter	Type	Required	Example	Description
PortList	RepeatList	Yes	[{"port":80,"ssl":false,"http2":false}, {"port":443,"ssl":true,"http2":true}]	The port information about the website. This parameter is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields: • **port**: the port number of the website. This field is required. Data type: integer. Valid values: 1 to 65535. • **ssl**: specifies whether to enable an SSL certificate. This field is required. Data type: Boolean. • **http2**: specifies whether to enable HTTP/2. This field is required. Data type: Boolean.
SSLCertId	Integer	No	3	The ID of the SSL certificate. If ssl of a port specified in PortList is set to **true**, this field is required. You can call the DescribeSSLCert operation to query the IDs of SSL certificates.

				The configurations of the website. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields:
				• **type**: the method to respond to requests. This field is required. Data type: string. Valid values:
				  ◦ **proxy**: forwards requests to the backend server.
				  ◦ **redirect**: redirects requests.
				  ◦ **response**: returns specific content.
				• **servers**: the information about the backend server. This field is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields:
				  ◦ **path**: the destination address for redirection. Data type: string. If **type** in BackendConfig is set to **redirect** or **response**, this field is required.

Parameter	Type	Required	Example	Description
BackendConfig	Json	Yes	{"type": "proxy", "servers": [{"host": "192.168.XX.XX", "port": 80, "protocol": "http", "attr": "ecs", "weight": 1}], "load_balance_policy": "Round Robin", "x_forwarded_for_action": "append", "header_config": []}	◦ **status_code**: the status code in the responses. Data type: integer. If **type** in BackendConfig is set to **redirect** or **response**, this field is required. ◦ **host**: the IP address of the backend server. This field is required. Data type: string. If the backend server is an Elastic Compute Service (ECS) or Server Load Balancer (SLB) instance, you can call the DescribeEcs or DescribeSlb operation to query the IP addresses (values of the **host** field) of backend servers. ◦ **port**: the port number of the backend server. This field is required. Data type: integer. Valid values: 1 to 65535. ◦ **protocol** :the protocol of the backend server. This field is required. Data type: string. Valid values: **http** and **https**. ◦ **attr**: the type of the backend server. This field is required. Data type: string. If you do not need to forward requests destined for the website to a specific backend server, set the value to **normal**. If you need to forward requests destined for the website to a specific backend server, set the value to **ecs** or **slb**. ◦ **weight**: the weight of the backend server. This field is required. Data type: integer. Valid values: any non-zero positive integer. • **load_balance_policy**: the scheduling algorithm. This field is required. Data type: string. Valid values: ◦ **Round Robin**: weighted round-robin ◦ **Least Connected**: least connection scheduling ◦ **IP Hash**: source IP hash • **x_forwarded_for_action**: the action on the X-Forwarded-For field in the HTTP request header. To identify the actual IP addresses of the clients that access your website by using HTTP proxies or load

Parameter	Type	Required	Example	Description
				balancing servers, you can specify this field. This field is required. Data type: string. Valid values: ○ **append**: appends the last-hop IP address to the X-Forwarded-For field. ○ **cover**: overwrites the original value of the X-Forwarded-For field with the last-hop IP address. ○ **no_action**: retains the original value of the X-Forwarded-For field. • **header_config**: the HTTP header configurations. This field is required. Data type: list. If you do not need to configure the HTTP header, set the field to an empty array. This field is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields: ○ **name**: the name of the HTTP header. This field is required. Data type: string. ○ **context**: the type of the HTTP header. This field is required. Data type: string. Valid values: **request** and **response**. ○ **action**: the action on the HTTP header. This field is required. Data type: string. Valid values: **set** and **hide**. ○ **name**: the value of the HTTP header. This field is required. Data type: string.
PolicyGroupId	Integer	No	6	The ID of the protection policy. If type in BackendConfig is set to **proxy**, this field is required. You can call the DescribePolicyGroup operation to query the IDs of protection policies.

Parameter	Type	Required	Example	Description

SessionMethod	Json	Yes	{"param":"userId","type":"url_query"}	The method to identify users. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields:
				• **param**: the ID of the user.
				• **type**: the method to identify users. This field is required. Data type: string. Valid values:
				  ○ **off**: does not identify users.
				  ○ **custom**: identifies users based on their IDs that are extracted from requests.
				  ○ **cookie**: identifies users based on the Cookie field.
				  ○ **url_query**: identifies users based on the GET parameters.
				  ○ **body_form**: identifies users based on the POST parameters.
				  ○ **header**: identifies users based on the HTTP header.
				  ○ **internal_session**: identifies users based on their systems.

Remark	String	No	Test site-1	The remarks.
Vpc	String	No	vpc-RSABVqbNiS****	The ID of the virtual private cloud (VPC). You can call the DescribeVpc operation to query the IDs of VPCs.
VpcName	String	No	csw	The name of the VPC. You can call the DescribeVpc operation to query the names of VPCs.
IsVpcWebsite	Boolean	No	true	Specifies whether the website is in a VPC. Default value: **false**. Valid values: • **true** • **false**
VipList	RepeatList	Yes	["192.168.XX.XX", "192.168.XX.XX"]	The virtual IP address (VIP). You can enter multiple VIPs. You can call the DescribeInternetVip operation to query the VIPs on the Internet and the DescribeVpcVip operation to query the VIPs in VPCs.

Parameter	Type	Required	Example	Description
IpSourceMethod	RepeatList	No	["Socket"]	The method to obtain the actual IP address. You can enter multiple methods. To obtain the actual IP address from **a field** in the HTTP request header, set the value to *XYZ/X-Forwarded-For:-n*. To obtain the socket information about the *last nth proxy* from **X-Forwarded-For**, append **Socket** to the end of the parameter value.

Parameter	Type	Required	Example	Description
AccessLogConfig	Json	No	{"is_enabled": true, "log_request_header": false, "log_response_header": false, "log_request_body": false, "log_payload": false, "log_dest_ip": true, "is_enable_full_access_log": false, "log_src_port": true, "log_event_id": true, "log_proxy_name": true}	The configurations for access logs. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **is_enabled**: specifies whether to record HTTP access logs. This parameter is required. Data type: Boolean. • **log_request_header**: specifies whether to record the HTTP request header. This parameter is required. Data type: Boolean. • **log_response_header**: specifies whether to record the HTTP response header. This parameter is required. Data type: Boolean. • **log_request_body**: specifies whether to record the HTTP request body. This parameter is required. Data type: Boolean. The maximum size of the HTTP request body that can be logged is 4 KB. • **log_payload**: specifies whether to record the payload. This parameter is required. Data type: Boolean. • **log_dest_ip**: specifies whether to record the destination IP address. This parameter is required. Data type: Boolean. • **is_enable_full_access_log**: specifies whether to record the full access logs. This parameter is required. Data type: Boolean. • **log_src_port**: specifies whether to record the source port. This parameter is required. Data type: Boolean. • **log_event_id**: specifies whether to record the ID of the event. This parameter is required. Data type: Boolean. • **log_proxy_name**: specifies whether to record the name of the proxy. This parameter is required. Data type: Boolean.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
		{"id": 7, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "policy_rules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_balance_policy": "Round Robin", "servers": [{"protocol": "http", "attr": "normal", "host": "10.10.XX.XX", "port": 15334, "weight": 1}], "x_forwarded_for_action": "append",	

Parameter	Type	Example	Description
└Result	String	"header_config": [], "health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "port": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_ssl_ciphers": ""}, "vpc": "vpc-tx9v6pc1nwc7pgtjx****", "vpc_name": "yundun****", "vip": ["10.10.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_website": false, "operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_names": ["www.aliyun.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.aliyun.com", "create_time": "1598243334", "last_update_time": "1598339330", "is_enabled": true, "detector_ip_source": ["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_enabled": true, "log_request_header": false, "log_response_header": false, "log_request_body": false, "log_payload":	The information about the added website.

Parameter	Type	Example	Description
		false, "is_enable_full_access_log": false, "log_dest_ip": true, "log_src_port": true, "log_event_id": true, "log_proxy_name": true}, "remark": "", "ssl_cert": null, "policy_group": 26}	

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreateWebsite
&RegionId=cn-hangzhou
&Name=test-website-1
&ServerNameList.1=www.aliyun.com
&PortList.1={\"port\":80,\"http2\":false,\"ssl\":false}
&SSLCertId=3
&BackendConfig={\"type\": \"proxy\", \"servers\": [{\"host\": \"192.168.XX.XX\", \"port\":
80, \"protocol\": \"http\", \"attr\": \"ecs\", \"weight\": 1, \"health_check_status\": \"UN
KNOWN\"}], \"load_balance_policy\": \"Round Robin\", \"x_forwarded_for_action\": \"append\"
, \"header_config\": []}
&PolicyGroupId=6
&SessionMethod={\"param\":\"userId\",\"type\":\"url_query\"}
&Remark=**site -1
&Vpc=vpc-RSABVqbNiS****
&VpcName=csw
&IsVpcWebsite=true
&VipList.1=192.168.XX.XX
&IpSourceMethod.1=Socket
&AccessLogConfig={\"is_enabled\": true, \"log_request_header\": false, \"log_response_heade
r\": false, \"log_request_body\": false, \"log_payload\": false, \"log_dest_ip\": true, \"i
s_enable_full_access_log\": false, \"log_src_port\": true, \"log_event_id\": true, \"log_pr
oxy_name\": true}
```

Sample success responses

`XML` format

```
<CreateWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 7, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "policy_r
ules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_balance_pol
icy": "Round Robin", "servers": [{"protocol": "http", "attr": "normal", "host": "10.10.XX.X
X", "port": 15334, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [],
"health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_
3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "por
t": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_ssl_
ciphers": ""}, "vpc": "vpc-tx9v6pc1nwc7pgtjx****", "vpc_name": "yundun****", "vip": ["10.10
.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_website": false, "
operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_names": ["www.al
iyun.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.aliyun.com", "create_time"
: "1598243334", "last_update_time": "1598339330", "is_enabled": true, "detector_ip_source":
["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_enabled": true,
"log_request_header": false, "log_response_header": false, "log_request_body": false, "log_
payload": false, "is_enable_full_access_log": false, "log_dest_ip": true, "log_src_port": t
rue, "log_event_id": true, "log_proxy_name": true}, "remark": "", "ssl_cert": null, "policy
_group": 26}</Result>
    </TaskStatus>
</CreateWebsiteResponse>
```


`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configuration generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 7, \"ip\": [\"0.0.XX.XX\"], \"session_method\": {\"type\": \"off\"}, \"policy_rules\": [], \"health_check_status\": \"\", \"backend_config\": {\"type\": \"proxy\", \"load_balance_policy\": \"Round Robin\", \"servers\": [{\"protocol\": \"http\", \"attr\": \"normal\", \"host\": \"10.10.XX.XX\", \"port\": 15334, \"weight\": 1}], \"x_forwarded_for_action\": \"append\", \"header_config\": [], \"health_check_config\": {\"is_enabled\": false, \"check_http_expect_alive\": [\"http_2xx\", \"http_3xx\"], \"check_type\": \"http\", \"interval\": 30000, \"fall\": 5, \"rise\": 2, \"timeout\": 1000, \"port\": null, \"host\": \"\", \"method\": \"GET\", \"path\": \"/\"}, \"proxy_ssl_protocols\": [], \"proxy_ssl_ciphers\": \"\"}, \"vpc\": \"vpc-tx9v6pc1nwc7pgtjx****\", \"vpc_name\": \"yundun****\", \"vip\": [\"10.10.XX.XX\"], \"ports\": [{\"port\": 80, \"ssl\": false, \"http2\": false}], \"is_vpc_website\": false, \"operation_mode\": \"Software Reverse Proxy\", \"interface\": \"virtual\", \"server_names\": [\"www.aliyun.com\"], \"ssl_protocols\": [], \"ssl_ciphers\": \"\", \"name\": \"www.aliyun.com\", \"create_time\": \"1598243334\", \"last_update_time\": \"1598339330\", \"is_enabled\": true, \"detector_ip_source\": [\"Socket\"], \"proxy_ip_list\": [], \"proxy_ip_groups\": [], \"access_log\": {\"is_enabled\": true, \"log_request_header\": false, \"log_response_header\": false, \"log_request_body\": false, \"log_payload\": false, \"is_enable_full_access_log\": false, \"log_dest_ip\": true, \"log_src_port\": true, \"log_event_id\": true, \"log_proxy_name\": true}, \"remark\": \"\", \"ssl_cert\": null, \"policy_group\": 26}"
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.3.3. EditWebsite

Modifies the information about a specific website.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditWebsite	The operation that you want to perform. Set the value to EditWebsite.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	Yes	1	The ID of the website.
Name	String	Yes	test-website-1	The name of the website.

Parameter	Type	Required	Example	Description
ServerNameList	RepeatList	Yes	["www.aliyun.com", "www.taobao.com"]	The domain name of the website. You can enter multiple domain names.
PortList	RepeatList	Yes	[{"port":80,"ssl":false,"http2":false}, {"port":443,"ssl":true,"http2":true}]	The port information about the website. This parameter is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields: • **port**: the port number of the website. This field is required. Data type: integer. Valid values: 1 to 65535. • **ssl**: specifies whether to enable an SSL certificate. This field is required. Data type: Boolean. • **http2**: specifies whether to enable HTTP/2. This field is required. Data type: Boolean.
SSLCertId	Integer	No	3	The ID of the SSL certificate. If ssl of a port specified in PortList is set to **true**, this field is required. You can call the DescribeSSLCert operation to query the IDs of SSL certificates.

				The configurations of the website. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields:
				• **type**: the method to respond to requests. This field is required. Data type: string. Valid values:
				  ◦ **proxy**: forwards requests to the backend server.
				  ◦ **redirect**: redirects requests.
				  ◦ **response**: returns specific content.
				• **servers**: the information about the backend server. This field is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields:

Parameter	Type	Required	Example	Description
BackendConfig	Json	Yes	{"type": "proxy", "servers": [{"host": "192.168.XX.XX", "port": 80, "protocol": "http", "attr": "ecs", "weight": 1}], "load_balance_policy": "Round Robin", "x_forwarded_for_action": "append", "header_config": []}	◦ **path**: the destination address for redirection. Data type: string. If **type** in BackendConfig is set to **redirect** or **response**, this field is required. ◦ **status_code**: the status code in the responses. Data type: integer. If **type** in BackendConfig is set to **redirect** or **response**, this field is required. ◦ **host**: the IP address of the backend server. This field is required. Data type: string. If the backend server is an Elastic Compute Service (ECS) or Server Load Balancer (SLB) instance, you can call the DescribeEcs or DescribeSlb operation to query the IP addresses (values of the **host** field) of backend servers. ◦ **port**: the port number of the backend server. This field is required. Data type: integer. Valid values: 1 to 65535. ◦ **protocol** :the protocol of the backend server. This field is required. Data type: string. Valid values: **http** and **https**. ◦ **attr**: the type of the backend server. This field is required. Data type: string. If you do not need to forward requests destined for the website to a specific backend server, set the value to **normal**. If you need to forward requests destined for the website to a specific backend server, set the value to **ecs** or **slb**. ◦ **weight**: the weight of the backend server. This field is required. Data type: integer. Valid values: any non-zero positive integer. • **load_balance_policy**: the scheduling algorithm. This field is required. Data type: string. Valid values: ◦ **Round Robin**: weighted round-robin ◦ **Least Connected**: least connection scheduling ◦ **IP Hash**: source IP hash

Parameter	Type	Required	Example	Description

				• **x_forwarded_for_action**: the action on the X-Forwarded-For field in the HTTP request header. To identify the actual IP addresses of the clients that access your website by using HTTP proxies or load balancing servers, you can specify this field. This field is required. Data type: string. Valid values:
				  ○ **append**: appends the last-hop IP address to the X-Forwarded-For field.
				  ○ **cover**: overwrites the original value of the X-Forwarded-For field with the last-hop IP address.
				  ○ **no_action**: retains the original value of the X-Forwarded-For field.
				• **header_config**: the HTTP header configurations. This field is required. Data type: list. If you do not need to configure the HTTP header, set the field to an empty array. This field is a string consisting of JSON arrays. Each element in a JSON array is a JSON struct that includes the following fields:
				  ○ **name**: the name of the HTTP header. This field is required. Data type: string.
				  ○ **context**: the type of the HTTP header. This field is required. Data type: string. Valid values: **request** and **response**.
				  ○ **action**: the action on the HTTP header. This field is required. Data type: string. Valid values: **set** and **hide**.
				  ○ **name**: the value of the HTTP header. This field is required. Data type: string.

PolicyGroupId	Integer	No	6	The ID of the protection policy. If type in BackendConfig is set to **proxy**, this field is required. You can call the DescribePolicyGroup operation to query the IDs of protection policies.

Parameter	Type	Required	Example	Description

SessionMethod	Json	Yes	{"param":"userId","type":"url_query"}	The method to identify users. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields:
				• **param**: the ID of the user.
				• **type**: the method to identify users. This field is required. Data type: string. Valid values:
				  ○ **off**: does not identify users.
				  ○ **custom**: identifies users based on their IDs that are extracted from requests.
				  ○ **cookie**: identifies users based on the Cookie field.
				  ○ **url_query**: identifies users based on the GET parameters.
				  ○ **body_form**: identifies users based on the POST parameters.
				  ○ **header**: identifies users based on the HTTP header.
				  ○ **internal_session**: identifies users based on their systems.

Remark	String	No	Test site-1	The remarks.
Vpc	String	No	vpc-RSABVqbNiS****	The ID of the virtual private cloud (VPC). You can call the DescribeVpc operation to query the IDs of VPCs.
VpcName	String	No	csw	The name of the VPC. You can call the DescribeVpc operation to query the names of VPCs.
IsVpcWebsite	Boolean	No	true	Specifies whether the website is in a VPC. Default value: **false**. Valid values: • **true** • **false**
VipList	RepeatList	Yes	["192.168.XX.XX", "192.168.XX.XX"]	The virtual IP address (VIP). You can enter multiple VIPs. You can call the DescribeInternetVip operation to query the VIPs on the Internet and the DescribeVpcVip operation to query the VIPs in VPCs.

Parameter	Type	Required	Example	Description
IpSourceMethod	RepeatList	Yes	["Socket"]	The method to obtain the actual IP address. You can enter multiple methods. To obtain the actual IP address from **a field** in the HTTP request header, set the value to *XYZ/X-Forwarded-For:-n*. To obtain the socket information about the *last nth proxy* from **X-Forwarded-For**, append **Socket** to the end of the parameter value.

Parameter	Type	Required	Example	Description
AccessLogConfig	Json	Yes	{"is_enabled": true, "log_request_header": false, "log_response_header": false, "log_request_body": false, "log_payload": false, "log_dest_ip": true, "is_enable_full_access_log": false, "log_src_port": true, "log_event_id": true, "log_proxy_name": true}	The configurations for access logs. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **is_enabled**: specifies whether to record HTTP access logs. This parameter is required. Data type: Boolean. • **log_request_header**: specifies whether to record the HTTP request header. This parameter is required. Data type: Boolean. • **log_response_header**: specifies whether to record the HTTP response header. This parameter is required. Data type: Boolean. • **log_request_body**: specifies whether to record the HTTP request body. This parameter is required. Data type: Boolean. The maximum size of the HTTP request body that can be logged is 4 KB. • **log_payload**: specifies whether to record the payload. This parameter is required. Data type: Boolean. • **log_dest_ip**: specifies whether to record the destination IP address. This parameter is required. Data type: Boolean. • **is_enable_full_access_log**: specifies whether to record the full access logs. This parameter is required. Data type: Boolean. • **log_src_port**: specifies whether to record the source port. This parameter is required. Data type: Boolean. • **log_event_id**: specifies whether to record the ID of the event. This parameter is required. Data type: Boolean. • **log_proxy_name**: specifies whether to record the name of the proxy. This parameter is required. Data type: Boolean.
SSLProtocols	RepeatList	No	["TLSv1.1", "TLSv1.2"]	The version of the SSL protocol. Valid values: **SSLv2**, **SSLv3**, **TLSv1**, **TLSv1.1**, **TLSv1.2**, and **TLSv1.3**.

Parameter	Type	Required	Example	Description
SSLCiphers	String	No	TLS_RSA_WITH_AES_128_CBC_SHA	The SSL cipher suite. This parameter is empty by default. You can directly use the cipher strings provided by OpenSSL. You can also concatenate and combine the cipher strings to match the value of the **SSLProtocols** parameter. Example: TLSv1.2:!eNULL:!aNULL:!TLSv1.1:!TLSv1:!SSLv3

ProxyBindingConfig	Json	No	{"enable": true, "hash_select_ip_method": "remote_addr_and_port", "proxy_bind_ip_list": [{"id": "c43b02112.cloud.b03.amtest21", "ips": ["10.10.XX.XX"]}]}	The configurations of back-to-origin IP addresses. The value is a string that consists of a JSON struct. The JSON struct contains the following fields:
				• **enable**: specifies whether to enable session persistence. This field is required. Data type: Boolean.
				• **hash_select_ip_method**: the method for session persistence. This field is optional. Data type: string. Valid values:
				  ○ **remote_addr**: source address-based hashing
				  ○ **remote_addr_and_port**: source port-based hashing
				• **proxy_bind_ip_list**: the list of IP addresses. This field is optional. Data type: list.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the video moderation task. This ID is returned by the Content Moderation server.
└Time	String	1593593692	The UNIX timestamp of when the task ends. Unit: seconds.

Parameter	Type	Example	Description
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
		{"id": 7, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "policy_rules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_balance_policy": "Round Robin", "servers": [{"protocol": "http", "attr": "normal", "host": "10.10.XX.XX", "port": 15334, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [], "health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "port": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [],	

Parameter	Type	Example	Description
└Result	String	"proxy_ssl_ciphers": ""}, "vpc": "vpc-tx9v6pc1nwc7pgtjx****", "vpc_name": "yundun****", "vip": ["10.10.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_website": false, "operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_names": ["www.aliyun.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.aliyun.com", "create_time": "1598243334", "last_update_time": "1598339330", "is_enabled": true, "detector_ip_source": ["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_enabled": true, "log_request_header": false, "log_response_header": false, "log_request_body": false, "log_payload": false, "is_enable_full_access_log": false, "log_dest_ip": true, "log_src_port": true, "log_event_id": true, "log_proxy_name": true}, "remark": "", "ssl_cert": null, "policy_group": 26}	The information about the website after modification.

Examples

Sample requests

```
https://semawaf.[RegionId].aliyuncs.com/?Action=EditWebsite
&RegionId=cn-hangzhou
&Id=1
&Name=test-website-1
&ServerNameList.1=www.aliyun.com
&PortList.1={\"port\":80,\"http2\":false,\"ssl\":false}
&SSLCertId=3
&BackendConfig={\"type\": \"proxy\", \"servers\": [{\"host\": \"192.168.XX.XX\", \"port\":
80, \"protocol\": \"http\", \"attr\": \"ecs\", \"weight\": 1, \"health_check_status\": \"UN
KNOWN\"}], \"load_balance_policy\": \"Round Robin\", \"x_forwarded_for_action\": \"append\"
, \"header_config\": []}
&PolicyGroupId=6
&SessionMethod={\"param\":\"userId\",\"type\":\"url_query\"}
&Remark=****website-1
&Vpc=vpc-RSABVqbNiS****
&VpcName=csw
&IsVpcWebsite=true
&VipList.1=192.168.XX.XX
&IpSourceMethod.1=Socket
&AccessLogConfig={\"is_enabled\": true, \"log_request_header\": false, \"log_response_heade
r\": false, \"log_request_body\": false, \"log_payload\": false, \"log_dest_ip\": true, \"i
s_enable_full_access_log\": false, \"log_src_port\": true, \"log_event_id\": true, \"log_pr
oxy_name\": true}
&SSLProtocols.1=TLSv1.1
&SSLCiphers=TLS_RSA_WITH_AES_128_CBC_SHA
&ProxyBindingConfig={\"enable\": true, \"hash_select_ip_method\": \"remote_addr_and_port\",
\"proxy_bind_ip_list\": [{\"id\": \"c43b02112.cloud.b03****\", \"ips\": [\"10.10.XX.XX\"]}]
}
```

Successful response examples

`XML` format

```
<EditWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 7, "ip": ["0.0.XX.XX"], "session_method": {"type": "off"}, "policy_r
ules": [], "health_check_status": "", "backend_config": {"type": "proxy", "load_balance_pol
icy": "Round Robin", "servers": [{"protocol": "http", "attr": "normal", "host": "10.10.XX.X
X", "port": 15334, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [],
"health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_
3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "por
t": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_ssl_
ciphers": ""}, "vpc": "vpc-tx9v6pc1nwc7pgtjx****", "vpc_name": "yundun****", "vip": ["10.10
.XX.XX"], "ports": [{"port": 80, "ssl": false, "http2": false}], "is_vpc_website": false, "
operation_mode": "Software Reverse Proxy", "interface": "virtual", "server_names": ["www.al
iyun.com"], "ssl_protocols": [], "ssl_ciphers": "", "name": "www.aliyun.com", "create_time"
: "1598243334", "last_update_time": "1598339330", "is_enabled": true, "detector_ip_source":
["Socket"], "proxy_ip_list": [], "proxy_ip_groups": [], "access_log": {"is_enabled": true,
"log_request_header": false, "log_response_header": false, "log_request_body": false, "log_
payload": false, "is_enable_full_access_log": false, "log_dest_ip": true, "log_src_port": t
rue, "log_event_id": true, "log_proxy_name": true}, "remark": "", "ssl_cert": null, "policy
_group": 26}</Result>
    </TaskStatus>
</EditWebsiteResponse>
```


`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configuration generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 7, \"ip\": [\"0.0.XX.XX\"], \"session_method\": {\"type\": \"off\"}, \"policy_rules\": [], \"health_check_status\": \"\", \"backend_config\": {\"type\": \"proxy\", \"load_balance_policy\": \"Round Robin\", \"servers\": [{\"protocol\": \"http\", \"attr\": \"normal\", \"host\": \"10.10.XX.XX\", \"port\": 15334, \"weight\": 1}], \"x_forwarded_for_action\": \"append\", \"header_config\": [], \"health_check_config\": {\"is_enabled\": false, \"check_http_expect_alive\": [\"http_2xx\", \"http_3xx\"], \"check_type\": \"http\", \"interval\": 30000, \"fall\": 5, \"rise\": 2, \"timeout\": 1000, \"port\": null, \"host\": \"\", \"method\": \"GET\", \"path\": \"/\"}, \"proxy_ssl_protocols\": [], \"proxy_ssl_ciphers\": \"\"}, \"vpc\": \"vpc-tx9v6pc1nwc7pgtjx****\", \"vpc_name\": \"yundun****\", \"vip\": [\"10.10.XX.XX\"], \"ports\": [{\"port\": 80, \"ssl\": false, \"http2\": false}], \"is_vpc_website\": false, \"operation_mode\": \"Software Reverse Proxy\", \"interface\": \"virtual\", \"server_names\": [\"www.aliyun.com\"], \"ssl_protocols\": [], \"ssl_ciphers\": \"\", \"name\": \"www.aliyun.com\", \"create_time\": \"1598243334\", \"last_update_time\": \"1598339330\", \"is_enabled\": true, \"detector_ip_source\": [\"Socket\"], \"proxy_ip_list\": [], \"proxy_ip_groups\": [], \"access_log\": {\"is_enabled\": true, \"log_request_header\": false, \"log_response_header\": false, \"log_request_body\": false, \"log_payload\": false, \"is_enable_full_access_log\": false, \"log_dest_ip\": true, \"log_src_port\": true, \"log_event_id\": true, \"log_proxy_name\": true}, \"remark\": \"\", \"ssl_cert\": null, \"policy_group\": 26}"
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.3.4. ToggleWebsite

Enables or disables WAF protection for a specific website.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ToggleWebsite	The operation that you want to perform. Set the value to ToggleWebsite.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the asynchronous task.

Parameter	Type	Required	Example	Description
ToggleAction	String	Yes	disable	Specifies the protection status of the website. Valid values: • **enable**: enables WAF protection. • **disable**: disables WAF protection.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=ToggleWebsite
&RegionId=cn-hangzhou
&IdList.1=1
&ToggleAction=disable
```

Sample success responses

`XML` format

```
<ToggleWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</ToggleWebsiteResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.5. QueryAsyncTaskStatus

Queries the status of an asynchronous task.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAsyncTaskStatus	The operation that you want to perform. Set the value to QueryAsyncTaskStatus.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
TaskId	String	Yes	11c745fc-1d66-40ea-90d7-7e9a12b987b2	The ID of the asynchronous task.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAsyncTaskStatus
&RegionId=cn-hangzhou
&TaskId=11c745fc-1d66-40ea-90d7-7e9a12b987b2
```

Sample success responses

`XML` format

```
<QueryAsyncTaskStatusResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</QueryAsyncTaskStatusResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.6. QueryAsyncTaskStatus

Queries the status of an asynchronous task.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAsyncTaskStatus	The operation that you want to perform. Set the value to QueryAsyncTaskStatus.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
TaskId	String	Yes	11c745fc-1d66-40ea-90d7-7e9a12b987b2	The ID of the asynchronous task.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAsyncTaskStatus
&RegionId=cn-hangzhou
&TaskId=11c745fc-1d66-40ea-90d7-7e9a12b987b2
```

Sample success responses

`XML` format

```
<QueryAsyncTaskStatusResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</QueryAsyncTaskStatusResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.7. UploadResponsePage

Uploads a response page file.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UploadResponsePage	The operation that you want to perform. Set the value to UploadResponsePage.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
FileName	String	No	forbidden.html	The name of the file.
FileContent	String	Yes	VXVPVm5QZEVuWHJhc2ViUGhNZEZRWHBjSnNRZXJn	The Base64-encoded content of the file.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"path":"572e83ed33331eb575f2dbd39f07e155"}	The returned information. **path**: the path of the uploaded file.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=UploadResponsePage
&RegionId=cn-hangzhou
&FileName=forbidden.html
&FileContent=VXVPVm5QZEVuWHJhc2ViUGhNZEZRWHBjSnNRZXJn
```

Sample success responses

`XML` format

```
<UploadResponsePageResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{&amp;quot;path&amp;quot;: &amp;quot;572e83ed33331eb575f2dbd39f07e155&amp;quot;}</Result>
</UploadResponsePageResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"path\": \"572e83ed33331eb575f2dbd39f07e155\"}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.8. DescribeInvalidWebsite

Queries the information about the invalid websites that are discovered by the upgrade detection feature.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInvalidWebsite	The operation that you want to perform. Set the value to DescribeInvalidWebsite.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the invalid website.
PageSize	Integer	No	20	The number of entries to return on each page. Default value: 10.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	[{"id": 1, "name": "invalid_website_1", "server_names": ["www.taobao.com"], "backend_config": {"type": "proxy", "load_balance_policy": "Round Robin", "servers": [{"protocol": "http", "attr": "slb", "host": "192.168.XX.XX", "port": 80, "weight": 1}], "x_forwarded_for_action": "append", "header_config": [], "health_check_config": {"is_enabled": false, "check_http_expect_alive": ["http_2xx", "http_3xx"], "check_type": "http", "interval": 30000, "fall": 5, "rise": 2, "timeout": 1000, "port": null, "host": "", "method": "GET", "path": "/"}, "proxy_ssl_protocols": [], "proxy_ssl_ciphers": ""}, "aliyun_info": {"id": 1, "vpc": "vpc-tx9isq1jrry8k3h9q****", "vswitch": "vsw-tx9v9qpazlcdcc86f****", "vip": ["10.10.XX.XX"], "is_normal": true, "frontend_port": [80]}}]	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeInvalidWebsite
&RegionId=cn-hangzhou
&Id=1
&PageSize=20
&PageNumber=1
```

Sample success responses

`XML` format

```
<DescribeInvalidWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"id": 1, "name": "invalid_website_1", "server_names": ["www.taobao.com"], "ba
ckend_config": {"type": "proxy", "load_balance_policy": "Round Robin", "servers": [{"protoc
ol": "http", "attr": "slb", "host": "192.168.XX.XX", "port": 80, "weight": 1}], "x_forwarde
d_for_action": "append", "header_config": [], "health_check_config": {"is_enabled": false,
"check_http_expect_alive": ["http_2xx", "http_3xx"], "check_type": "http", "interval": 3000
0, "fall": 5, "rise": 2, "timeout": 1000, "port": null, "host": "", "method": "GET", "path"
: "/"}, "proxy_ssl_protocols": [], "proxy_ssl_ciphers": ""}, "aliyun_info": {"id": 1, "vpc"
: "vpc-tx9isq1jrry8k3h9q****", "vswitch": "vsw-tx9v9qpazlcdcc86f****", "vip": ["10.10.XX.XX
"], "is_normal": true, "frontend_port": [80]}}]</Result>
</DescribeInvalidWebsiteResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"id\": 1, \"name\": \"invalid_website_1\", \"server_names\": [\"www.taobao.c
om\"], \"backend_config\": {\"type\": \"proxy\", \"load_balance_policy\": \"Round Robin\",
\"servers\": [{\"protocol\": \"http\", \"attr\": \"slb\", \"host\": \"192.168.XX.XX\", \"po
rt\": 80, \"weight\": 1}], \"x_forwarded_for_action\": \"append\", \"header_config\": [], \
"health_check_config\": {\"is_enabled\": false, \"check_http_expect_alive\": [\"http_2xx\",
\"http_3xx\"], \"check_type\": \"http\", \"interval\": 30000, \"fall\": 5, \"rise\": 2, \"t
imeout\": 1000, \"port\": null, \"host\": \"\", \"method\": \"GET\", \"path\": \"/\"}, \"pr
oxy_ssl_protocols\": [], \"proxy_ssl_ciphers\": \"\"}, \"aliyun_info\": {\"id\": 1, \"vpc\"
: \"vpc-tx9isq1jrry8k3h9q****\", \"vswitch\": \"vsw-tx9v9qpazlcdcc86f****\", \"vip\": [\"10
.10.XX.XX\"], \"is_normal\": true, \"frontend_port\": [80]}}]"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.9. DeleteInvalidWebsite

Deletes a specific invalid website. If you use Apsara Stack Enterprise V3.12.0 or upgrade Apsara Stack Enterprise to a later version, WAF performs validity checks and measures invalid websites.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteInvalidWebsite	The operation that you want to perform. Set the value to DeleteInvalidWebsite.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the invalid website. You can enter multiple IDs. You can call the DescribeWebsite operation to query the IDs of websites.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	None	The returned information. This value is empty.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteInvalidWebsite
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeleteInvalidWebsiteResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</DeleteInvalidWebsiteResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.10. DescribeInternetVip

Queries the information about the virtual IP addresses (VIPs) on the Internet.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeInternetVip	The operation that you want to perform. Set the value to DescribeInternetVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Result	String	[{"ip": "42.36.XX.XX", "type": "internet IP", "delete": false}, {"ip": "10.10.XX.XX", "type": "intranet IP", "delete": false}]	The information about the VIPs on the Internet. The information includes the following fields:
			• **ip**: the VIP on the Internet.
			• **type**: the type of the return value. The field value is fixed as **internet IP**, which indicates a VIP on the Internet.
			• **delete**: indicates whether the VIP can be deleted. Valid values:
			  ◦ **true**: The VIP can be deleted.
			  ◦ **false**: The VIP cannot be deleted.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeInternetVip
&RegionId=cn-hangzhou
```

Sample success responses

`XML` format

```
<DescribeInternetVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"ip": "42.36.XX.XX", "type": "internet IP", "delete": false}, {"ip": "10.10.X
X.XX", "type": "intranet IP", "delete": false}]</Result>
</DescribeInternetVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"ip\": \"42.36.XX.XX\", \"type\": \"internet IP\", \"delete\": false}, {\"ip
\": \"10.10.XX.XX\", \"type\": \"intranet IP\", \"delete\": false}]"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.11. CreateInternetVip

Creates a virtual IP address (VIP) on the Internet.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateInternetVip	The operation that you want to perform. Set the value to CreateInternetVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IpAddress	String	No	10.10.XX.XX	The VIP that you want to create on the Internet.
IpVersion	String	No	ipv6	The version of the IP protocol. Valid values: • **ipv4** • **ipv6**
NetworkType	String	Yes	internet	The type of the network. Valid values: • **intranet** • **internet** If you set the **IpVersion** parameter to **ipv6**, you can set the NetworkType parameter only to **intranet**.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description

Result	String	{"ip": "42.36.XX.XX", "type": "internet IP", "delete": true}	The information about the created VIP. The information includes the following fields:
			• **ip**: the VIP on the Internet.
			• **type**: the type of the return value. The field value is fixed as **internet IP**, which indicates a VIP on the Internet.
			• **delete**: indicates whether the VIP can be deleted. Valid values:
			  ◦ **true**: The VIP can be deleted.
			  ◦ **false**: The VIP cannot be deleted.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreateInternetVip
&RegionId=cn-hangzhou
&IpAddress=10.10.XX.XX
&IpVersion=ipv6
&NetworkType=internet
```

Sample success responses

`XML` format

```
<CreateInternetVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"ip": "42.36.XX.XX", "type": "internet IP", "delete": true}</Result>
</CreateInternetVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"ip\": \"42.36.XX.XX\", \"type\": \"internet IP\", \"delete\": true}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.12. DeleteInternetVip

Deletes a virtual IP address (VIP) on the Internet.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteInternetVip	The operation that you want to perform. Set the value to DeleteInternetVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Vip	String	No	10.10.XX.XX	The VIP that you want to delete on the Internet.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	Empty	The returned information. This value is empty.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteInternetVip
&RegionId=cn-hangzhou
&Vip=10.10.XX.XX
```

Sample success responses

`XML` format

```
<DeleteInternetVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</DeleteInternetVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.13. DescribeVpc

Queries the information about virtual private clouds (VPCs).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpc	The operation that you want to perform. Set the value to DescribeVpc.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"vpc_list": [{"vpc_id": "vpc-tx9fk7rftc9wbroix****", "name": "cfw_vpc****", "desc": "", "cidr": "172.16.XX.XX/16"}]	The information about the VPCs.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeVpc
&RegionId=cn-hangzhou
```

Sample success responses

`XML` format

```
<DescribeVpcResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"vpc_list": [{"vpc_id": "vpc-tx9fk7rftc9wbroix****", "name": "cfw_vpc****", "d
esc": "", "cidr": "172.16.XX.XX/16"}]</Result>
</DescribeVpcResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"vpc_list\": [{\"vpc_id\": \"vpc-tx9fk7rftc9wbroix****\", \"name\": \"cfw_vpc
****\", \"desc\": \"\", \"cidr\": \"172.16.XX.XX/16\"}]"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.14. DescribeVSwitch

Queries the information about the vSwitches in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVSwitch	The operation that you want to perform. Set the value to DescribeVSwitch.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"vswitch_list": [{"instanceId": "vsw-tx9v9qpazlcdcc86******", "instanceName": "zyp004", "vpcId": "vpc-tx9evaxvf65gt95gb******", "cidrBlock": "192.168.XX.XX/16", "description": ""}]}	The information about the vSwitches in the VPC.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeVSwitch
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
```

Sample success responses

`XML` format

```
<DescribeVSwitchResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"vswitch_list": [{"instanceId": "vsw-tx9v9qpazlcdcc86f****", "instanceName": "
zyp004", "vpcId": "vpc-tx9evaxvf65gt95gb****", "cidrBlock": "192.168.XX.XX/16", "descriptio
n": ""}]}</Result>
</DescribeVSwitchResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"vswitch_list\": [{\"instanceId\": \"vsw-tx9v9qpazlcdcc86f****\", \"instanceN
ame\": \"zyp004\", \"vpcId\": \"vpc-tx9evaxvf65gt95gb****\", \"cidrBlock\": \"192.168.XX.XX
/16\", \"description\": \"\"}]}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.15. DescribeVpcVip

Queries the information about the virtual IP addresses (VIPs) in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeVpcVip	The operation that you want to perform. Set the value to DescribeVpcVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"items": [{"ip": "192.168.XX.XX", "type": " IP"}], "total": 1}	The information about the VIPs in the VPC. The information includes the following fields: • **items**: the returned VIPs. Information about the VIPs: ◦ **ip**: the VIP in the VPC. ◦ **type**: the type of the return value. The field value is fixed as **IP**, which indicates a VIP. • **total**: the total number of VIPs returned.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeVpcVip
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
```

Sample success responses

`XML` format

```
<DescribeVpcVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"ip": "192.168.XX.XX", "type": " IP"}], "total": 1}</Result>
</DescribeVpcVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"ip\": \"192.168.XX.XX\", \"type\": \" IP\"}], \"total\": 1}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.16. CreateVpcVip

Creates a virtual IP address (VIP) in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateVpcVip	The operation that you want to perform. Set the value to CreateVpcVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.
VSwitchId	String	Yes	vsw-APUjoSJOoBw****	The ID of the vSwitch.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"ip": "192.168.XX.XX", "type": "intranet IP"}	The information about the created VIP. The **type** field indicates the type of the VIP. The field value is fixed as **intranet IP**, which indicates an internal IP address.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreateVpcVip
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
&VSwitchId=vsw-APUjoSJOoBw****
```

Sample success responses

`XML` format

```
<CreateVpcVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"ip": "192.168.XX.XX", "type": "intranet IP"}</Result>
</CreateVpcVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"ip\": \"192.168.XX.XX\", \"type\": \"intranet IP\"}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.17. DeleteVpcVip

Deletes a virtual IP address (VIP) in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteVpcVip	The operation that you want to perform. Set the value to DeleteVpcVip.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.
Vip	String	Yes	10.10.XX.XX	The VIP in the VPC. You can call the DescribeVpcVip operation to query the VIPs in a specific VPC.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	None	The returned information. If the call is successful, this value is empty.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteVpcVip
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
&Vip=10.10.XX.XX
```

Sample success responses

`XML` format

```
<DeleteVpcVipResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</DeleteVpcVipResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.18. DescribeEcs

Queries the information about the Elastic Compute Service (ECS) instances in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeEcs	The operation that you want to perform. Set the value to DescribeEcs.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"ecs": [{"instanceId": "i-tx905fcsw7erxzox****", "instanceName": "ecs****", "internetIp": "", "intranetIp": "192.168.XX.XX", "eip": "", "natIp": "6.6.XX.XX", "status": "Running", "networkType": "vpc", "vpcId": "vpc-tx94ktgeqccd7l98c****", "vswitchId": "vsw-tx9vktwbt8w3vw6wh****", "securityGroupId": "sg-tx9aps47sy596qwj****", "hostName": "iZtx905fcsw7erxzoxa****", "osType": "CentOS 7.2", "createTime": 1588838676000}]}	The information about the ECS instances in the VPC.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeEcs
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
```

Sample success responses

`XML` format

```
<DescribeEcsResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"ecs": [{"instanceId": "i-tx905fcsw7erxzox****", "instanceName": "ecs****", "i
nternetIp": "", "intranetIp": "192.168.XX.XX", "eip": "", "natIp": "6.6.XX.XX", "status": "
Running", "networkType": "vpc", "vpcId": "vpc-tx94ktgeqccd7l98c****", "vswitchId": "vsw-tx9
vktwbt8w3vw6wh****", "securityGroupId": "sg-tx9aps47sy596qwj****", "hostName": "iZtx905fcsw
7erxzoxa****", "osType": "CentOS 7.2", "createTime": 1588838676000}]}</Result>
</DescribeEcsResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"ecs\": [{\"instanceId\": \"i-tx905fcsw7erxzox****\", \"instanceName\": \"ecs
****\", \"internetIp\": \"\", \"intranetIp\": \"192.168.XX.XX\", \"eip\": \"\", \"natIp\":
\"6.6.XX.XX\", \"status\": \"Running\", \"networkType\": \"vpc\", \"vpcId\": \"vpc-tx94ktge
qccd7l98c****\", \"vswitchId\": \"vsw-tx9vktwbt8w3vw6wh****\", \"securityGroupId\": \"sg-tx
9aps47sy596qwj****\", \"hostName\": \"iZtx905fcsw7erxzoxa****\", \"osType\": \"CentOS 7.2\"
, \"createTime\": 1588838676000}]}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.3.19. DescribeSlb

Queries the information about the Server Load Balancer (SLB) instances in a specific virtual private cloud (VPC).

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSlb	The operation that you want to perform. Set the value to DescribeSlb.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
VpcId	String	Yes	vpc-RSABVqbNiSs****	The ID of the VPC. You can call the DescribeVpc operation to query the IDs of VPCs.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"slb": [{"instanceId": "slb-tx9n49pigmazoow4h****", "instanceName": "waf****", "status": "active", "networkType": "intranet", "ip": "192.168.XX.XX", "ipVersion": "ipv4"}]}	The information about the SLB instances in the VPC.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeSlb
&RegionId=cn-hangzhou
&VpcId=vpc-RSABVqbNiSs****
```

Sample success responses

`XML` format

```
<DescribeSlbResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"slb": [{"instanceId": "slb-tx9n49pigmazoow4h****", "instanceName": "waf****",
"status": "active", "networkType": "intranet", "ip": "192.168.XX.XX", "ipVersion": "ipv4"}]
}</Result>
</DescribeSlbResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"slb\": [{\"instanceId\": \"slb-tx9n49pigmazoow4h****\", \"instanceName\": \"
waf****\", \"status\": \"active\", \"networkType\": \"intranet\", \"ip\": \"192.168.XX.XX\"
, \"ipVersion\": \"ipv4\"}]}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4. HTTP flood protection rules

19.1.4.4.1. DescribeCCRuleTemplate

Queries the information about HTTP flood protection rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCCRuleTemplate	The operation that you want to perform. Set the value to DescribeCCRuleTemplate.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the HTTP flood protection rule.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"items": [{"id": 1, "name": "cc-policy-test", "version": 40, "is_enabled": true, "match_method": {"target_type": "CIDR", "period": null, "limit": null, "scope": "URL Prefix", "policy": "www.taobao.com", "scheme": "http"}, "action": {"action": "forbid"}, "create_time": "1594627307", "expire_period": 10, "execution_number": 0, "template_type": "manual", "is_inaccurate": false, "dry_run": false}], "total": 1}	The returned result of the request. For more information about the **match_method** parameter in the returned result, see the description of **MatchMethod** in CreateCCRuleTemplate.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeCCRuleTemplate
&RegionId=cn-hangzhou
&Id=1
&PageSize=20
&PageNumber=1
```

Sample success responses

`XML` format

```
<DescribeCCRuleTemplateResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"id": 1, "name": "cc-policy-test", "version": 40, "is_enabled": tru
e, "match_method": {"target_type": "CIDR", "period": null, "limit": null, "scope": "URL Pre
fix", "policy": "www.taobao.com", "scheme": "http"}, "action": {"action": "forbid"}, "creat
e_time": "1594627307", "expire_period": 10, "execution_number": 0, "template_type": "manual
", "is_inaccurate": false, "dry_run": false}], "total": 1}</Result>
</DescribeCCRuleTemplateResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"id\": 1, \"name\": \"cc-policy-test\", \"version\": 40, \"is_enabled\": true, \"match_method\": {\"target_type\": \"CIDR\", \"period\": null, \"limit\": null, \"scope\": \"URL Prefix\", \"policy\": \"www.taobao.com\", \"scheme\": \"http\"}, \"action\": {\"action\": \"forbid\"}, \"create_time\": \"1594627307\", \"expire_period\": 10, \"execution_number\": 0, \"template_type\": \"manual\", \"is_inaccurate\": false, \"dry_run\": false}], \"total\": 1}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.4.2. CreateCCRuleTemplate

Creates an HTTP flood protection rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateCCRuleTemplate	The operation that you want to perform. Set the value to CreateCCRuleTemplate.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Name	String	Yes	cc-rule-1	The name of the HTTP flood protection rule.
TemplateType	String	Yes	auto	The type of the rule. Valid values: • **manual**: limits requests based on specific IP addresses or sessions. • **auto**: limits requests that meet specific conditions.
Enable	Boolean	No	true	Specifies whether to enable the rule. Default value: **true**. Valid values: • **true**: enables the HTTP flood protection rule. • **false**: disables the HTTP flood protection rule.
RuleMode	Boolean	No	false	The mode of the rule. Default value: **false**. Valid values: • **true**: monitors specific requests. • **false**: blocks specific requests.

Parameter	Type	Required	Example	Description
RuleList	RepeatList	No	["192.168.XX.XX", "192.168.XX.XX/24"]	The IP addresses, classless inter-domain routing (CIDR) blocks, or sessions. If you set TemplateType to **manual** to limit requests from known sources, this parameter is required
RuleAction	Json	Yes	{"action":"forbid","limit_rate_limit":1,"limit_rate_period":5}	The action on requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **action**: the action on the requests. This field is required. Data type: string. Valid values: **forbid** and **Limit Rate**. The value forbid indicates that the system blocks requests. The value Limit Rate indicates that the system limits the number of requests to handle over a specific period. • **limit_rate_limit**: the number of requests to handle over a specific period. If you set **action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **limit_rate_period**: the period in which the system limits the number of requests to handle. If you set **action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer.
FuzzyCount	Boolean	No	false	The statistical aggregation method to count requests. Default value: **false**. Valid values: • **true**: counts requests with the most occurrence. • **false**: counts all requests.

Parameter	Type	Required	Example	Description
MatchMethod	Json	Yes	{"scope":"URL Prefix","limit":"10","period":5,"target_type":"CIDR","policy":"www.aliyun.com","scheme":"http"}	The match conditions. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **scope** :the statistical aggregation method to count requests. This field is required. Data type: string. Valid values: **URL Prefix**, **URL**, and **All**. The value URL Prefix indicates that the requests containing the specific URL prefix are counted. The value URL indicates that the requests containing the specific URL are counted. The value All indicates that all requests are counted. • **limit**: the number of requests to handle over a specific period. If you set **RuleAction.action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **period**: the period in which the system limits the number of requests to handle. If you set **RuleAction.action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **target_type**: the object type based on which the system limits requests. This field is required. Data type: string. Valid values: **CIDR** and **Session**. • **policy**: the URL or URL prefix based on which requests are counted. If you set **scope** to **URL Prefix** or **URL**, this field is required. • **policy**: the scheme based on which requests are counted. If you set **scope** to **URL Prefix** or **URL**, this field is required. Valid values: **http** and **https**.
ExpirePeriod	Integer	No	86400	The validity period after the rule is triggered. Unit: seconds.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Parameter	Type	Example	Description
└Result	String	{"id": 17, "name": "test-cc-rule-1", "version": 65, "is_enabled": true, "match_method": {"target_type": "CIDR", "period": 5, "limit": 5, "scope": "All"}, "action": {"action": "forbid"}, "create_time": "1598337034", "expire_period": null, "execution_number": 0, "template_type": "auto", "is_inaccurate": false, "dry_run": false}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreateCCRuleTemplate
&RegionId=cn-hangzhou
&Name=cc-rule-1
&TemplateType=auto
&Enable=true
&RuleMode=true
&RuleList.1=192.168.XX.XX
&RuleAction={"action":"forbid","limit_rate_limit":1,"limit_rate_period":5}
&FuzzyCount=true
&MatchMethod={"scope":"URL Prefix","limit":"10","period":5,"target_type":"CIDR","policy":"w
ww.aliyun.com","scheme":"http"}
&ExpirePeriod=86400
```

Sample success responses

`XML` format

```
<CreateCCRuleTemplateResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 17, "name": "test-cc-rule-1", "version": 65, "is_enabled": true, "ma
tch_method": {"target_type": "CIDR", "period": 5, "limit": 5, "scope": "All"}, "action": {"
action": "forbid"}, "create_time": "1598337034", "expire_period": null, "execution_number":
0, "template_type": "auto", "is_inaccurate": false, "dry_run": false}</Result>
    </TaskStatus>
</CreateCCRuleTemplateResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 17, \"name\": \"test-cc-rule-1\", \"version\": 65, \"is_enabled\": t
rue, \"match_method\": {\"target_type\": \"CIDR\", \"period\": 5, \"limit\": 5, \"scope\":
\"All\"}, \"action\": {\"action\": \"forbid\"}, \"create_time\": \"1598337034\", \"expire_p
eriod\": null, \"execution_number\": 0, \"template_type\": \"auto\", \"is_inaccurate\": fal
se, \"dry_run\": false}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.3. EditCCRuleTemplate

Modifies a specific HTTP flood protection rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditCCRuleTemplate	The operation that you want to perform. Set the value to EditCCRuleTemplate.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Parameter	Type	Required	Example	Description
Id	Integer	No	1	The ID of the HTTP flood protection rule. You can call the DescribeCCRuleTemplate operation to query the IDs of HTTP flood protection rules.
Name	String	Yes	cc-rule-1	The name of the HTTP flood protection rule.
Enable	Boolean	No	true	Specifies whether to enable the rule. Default value: **true**. Valid values: • **true**: enables the HTTP flood protection rule. • **false**: disables the HTTP flood protection rule.
RuleMode	Boolean	No	false	The mode of the rule. Default value: **false**. Valid values: • **true**: monitors specific requests. • **false**: blocks specific requests.

Parameter	Type	Required	Example	Description
RuleAction	Json	Yes	{"action":"forbid","limit_rate_limit":1,"limit_rate_period":5}	The action on requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **action**: the action on the requests. This field is required. Data type: string. Valid values: **forbid** and **Limit Rate**. The value forbid indicates that the system blocks requests. The value Limit Rate indicates that the system limits the number of requests to handle over a specific period. • **limit_rate_limit**: the number of requests to handle over a specific period. If you set **action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **limit_rate_period**: the period in which the system limits the number of requests to handle. If you set **action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer.
FuzzyCount	Boolean	No	false	The statistical aggregation method to count requests. Default value: **false**. Valid values: • **true**: counts requests with the most occurrence. • **false**: counts all requests.

Parameter	Type	Required	Example	Description
MatchMethod	Json	Yes	{"scope":"URL Prefix","limit":"10","period":5,"target_type":"CIDR","policy":"www.aliyun.com","scheme":"http"}	The match conditions. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **scope** :the statistical aggregation method to count requests. This field is required. Data type: string. Valid values: **URL Prefix**, **URL**, and **All**. The value URL Prefix indicates that the requests containing the specific URL prefix are counted. The value URL indicates that the requests containing the specific URL are counted. The value All indicates that all requests are counted. • **limit**: the number of requests to handle over a specific period. If you set **RuleAction.action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **period**: the period in which the system limits the number of requests to handle. If you set **RuleAction.action** to **Limit Rate**, this field is required. Data type: integer. Valid values: any non-zero positive integer. • **target_type**: the object type based on which the system limits requests. This field is required. Data type: string. Valid values: **CIDR** and **Session**. • **policy**: the URL or URL prefix based on which requests are counted. If you set **scope** to **URL Prefix** or **URL**, this field is required. • **policy**: the scheme based on which requests are counted. If you set **scope** to **URL Prefix** or **URL**, this field is required. Valid values: **http** and **https**.
ExpirePeriod	Integer	No	86400	The validity period after the rule is triggered. Unit: seconds.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Parameter	Type	Example	Description
└Result	String	{"id": 1, "name": "test-cc-rule-1", "version": 65, "is_enabled": true, "match_method": {"target_type": "CIDR", "period": 5, "limit": 5, "scope": "All"}, "action": {"action": "forbid"}, "create_time": "1598337034", "expire_period": null, "execution_number": 0, "template_type": "auto", "is_inaccurate": false, "dry_run": false}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=EditCCRuleTemplate
&RegionId=cn-hangzhou
&Id=1
&Name=cc-rule-1
&Enable=true
&RuleMode=true
&RuleAction={"action":"forbid","limit_rate_limit":1,"limit_rate_period":5}
&FuzzyCount=true
&MatchMethod={"scope":"URL Prefix","limit":"10","period":5,"target_type":"CIDR","policy":"w
ww.aliyun.com","scheme":"http"}
&ExpirePeriod=86400
```

Sample success responses

`XML` format

```
<EditCCRuleTemplateResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 1, "name": "test-cc-rule-1", "version": 65, "is_enabled": true, "mat
ch_method": {"target_type": "CIDR", "period": 5, "limit": 5, "scope": "All"}, "action": {"a
ction": "forbid"}, "create_time": "1598337034", "expire_period": null, "execution_number":
0, "template_type": "auto", "is_inaccurate": false, "dry_run": false}</Result>
    </TaskStatus>
</EditCCRuleTemplateResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 1, \"name\": \"test-cc-rule-1\", \"version\": 65, \"is_enabled\": tr
ue, \"match_method\": {\"target_type\": \"CIDR\", \"period\": 5, \"limit\": 5, \"scope\": \
"All\"}, \"action\": {\"action\": \"forbid\"}, \"create_time\": \"1598337034\", \"expire_pe
riod\": null, \"execution_number\": 0, \"template_type\": \"auto\", \"is_inaccurate\": fals
e, \"dry_run\": false}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.4. ToggleCCRuleTemplate

Enables or disables a specific HTTP flood protection rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ToggleCCRuleTemplate	The operation that you want to perform. Set the value to ToggleCCRuleTemplate.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Parameter	Type	Required	Example	Description
IdList	RepeatList	Yes	[1, 2]	The ID of the HTTP flood protection rule. You can enter multiple IDs. You can call the DescribeCCRuleTemplate operation to query the IDs of HTTP flood protection rules.
ToggleAction	String	Yes	disable	Specifies the status of the HTTP flood protection rule. Valid values: • **enable** • **disable**

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=ToggleCCRuleTemplate
&RegionId=cn-hangzhou
&IdList.1=1
&ToggleAction=disable
```

Sample success responses

`XML` format

```
<ToggleCCRuleTemplateResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</ToggleCCRuleTemplateResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.5. DeleteCCRuleTemplate

Deletes a specific HTTP flood protection rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteCCRuleTemplate	The operation that you want to perform. Set the value to DeleteCCRuleTemplate.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the HTTP flood protection rule. You can enter multiple IDs. You can call the DescribeCCRuleTemplate operation to query the IDs of HTTP flood protection rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteCCRuleTemplate
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeleteCCRuleTemplateResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</DeleteCCRuleTemplateResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.6. ClearCCRestrictionList

Removes the restricted users in a specific HTTP flood protection rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ClearCCRestrictionList	The operation that you want to perform. Set the value to ClearCCRestrictionList.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Parameter	Type	Required	Example	Description
CCRuleTemplateId	Integer	Yes	35	The ID of the HTTP flood protection rule. You can call the DescribeCCRuleTemplate operation to query the IDs of HTTP flood protection rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=ClearCCRestrictionList
&RegionId=cn-hangzhou
&CCRuleTemplateId=35
```

Sample success responses

`XML` format

```
<ClearCCRestrictionListResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</ClearCCRestrictionListResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.7. DescribeCCWhitelist

Queries the information about HTTP flood protection whitelists.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeCCWhitelist	The operation that you want to perform. Set the value to DescribeCCWhitelist.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the HTTP flood protection whitelist.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
TargetTypeFilter	RepeatList	No	["CIDR", "Session"]	The type to filter whitelists. You can enter multiple types. Valid values: • **CIDR** • **Session**
CommentFilter	RepeatList	No	["cc-whitelist-1", "cc-whitelist-2"]	The remarks to filter whitelists. You can enter multiple remarks.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"items": [{"id": 5, "target": "10.12.XX.XX", "target_type": "CIDR", "target_ip_group": null, "comment": "", "create_time": "1594627457"}], "total": 1}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeCCWhitelist
&RegionId=cn-hangzhou
&PageSize=10
&PageNumber=1
&TargetTypeFilter.1=CIDR
&CommentFilter.1=cc-whitelist-1
```

Sample success responses

`XML` format

```
<DescribeCCWhitelistResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"id": 5, "target": "10.12.XX.XX", "target_type": "CIDR", "target_ip
_group": null, "comment": "", "create_time": "1594627457"}], "total": 1}</Result>
</DescribeCCWhitelistResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"id\": 5, \"target\": \"10.12.XX.XX\", \"target_type\": \"CIDR\"
, \"target_ip_group\": null, \"comment\": \"\", \"create_time\": \"1594627457\"}], \"total\
": 1}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.8. CreateCCWhitelist

Creates an HTTP flood protection whitelist.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateCCWhitelist	The operation that you want to perform. Set the value to CreateCCWhitelist.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
TargetType	String	Yes	auto	The type of the HTTP flood protection whitelist. Valid values: • **CIDR** • **Session**
Comment	String	Yes	Whitelist-192168100200	The remarks of the whitelist.
TargetList	RepeatList	Yes	["10.10.XX.XX", "10.10.XX.XX/24"]	The IP address, CIDR block, or session in the whitelist. You can enter multiple IP addresses, CIDR blocks, or sessions.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
└Result	String	[{"id": null, "target": "10.10.XX.XX", "target_type": "CIDR", "target_ip_group": null, "comment": "", "create_time": "1598337455"}]	The information about the created whitelist.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreateCCWhitelist
&RegionId=cn-hangzhou
&TargetType=CIDR
&Comment=Whitelist-192168100200
&TargetList.1=10.10.XX.XX
```

Sample success responses

`XML` format

```
<CreateCCWhitelistResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>[{"id": null, "target": "10.10.XX.XX", "target_type": "CIDR", "target_ip_gr
oup": null, "comment": "", "create_time": "1598337455"}]</Result>
    </TaskStatus>
</CreateCCWhitelistResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"[{\"id\": null, \"target\": \"10.10.XX.XX\", \"target_type\": \"CIDR\", \"tar
get_ip_group\": null, \"comment\": \"\", \"create_time\": \"1598337455\"}]"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.4.9. DeleteCCWhitelist

Deletes a specific HTTP flood protection whitelist.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteCCWhitelist	The operation that you want to perform. Set the value to DeleteCCWhitelist.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Parameter	Type	Required	Example	Description
IdList	RepeatList	Yes	[1, 2]	The ID of the HTTP flood protection whitelist. You can enter multiple IDs. You can call the DescribeCCWhitelist operation to query the IDs of HTTP flood protection whitelists.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteCCWhitelist
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeleteCCWhitelistResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</DeleteCCWhitelistResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5. Custom rules

19.1.4.5.1. DescribePolicyRule

Queries the information about custom rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribePolicyRule	The operation that you want to perform. Set the value to DescribePolicyRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the custom rule.

Parameter	Type	Required	Example	Description
Enable	Boolean	No	true	Specifies whether to filter custom rules.
RiskLevelFilter	RepeatList	No	[1, 2]	The risk level to filter rules. You can enter multiple values. Valid values: • **0**: no risks • **1**: low • **2**: medium • **3**: high
AttackTypeFilter	RepeatList	No	[1, 2, 3]	The attack type to filter rules. You can enter multiple values. Valid values: **-1** (non-web attacks), **0** (SQL injection attacks), **1** (XSS attacks), **2** (CSRF attacks), **3** (SSRF attacks), **4** (denial of service attacks), **5** (backdoors), **6** (deserialization attacks), **7** (code executions), **8** (code injection attacks), **9** (command injection attacks), **10** (file uploads), **11** (file inclusions), **12** (redirection attacks), **13** (improper authorization), **14** (information leaks), **15** (unauthorized access), **16** (insecure configurations), **17** (XXE attacks), **18** (Xpath injection attacks), **19** (LDAP injection attacks), **20** (path traversal attacks), **21** (scanners), **22** (horizontal authorization bypass), **23** (vertical authorization bypass), **24** (file modifications), **25** (file reads), **26** (file deletions), **27** (logical errors), **28** (CRLF injection attacks), **29** (template injection attacks), **30** (click hijacking attacks), **31** (buffer overflows), **32** (integer overflows), **33** (format string attacks), **34** (race condition attacks), **61** (timeout errors), and **62** (unknown attacks).

Parameter	Type	Required	Example	Description
PolicyActionFilter	RepeatList	No	["deny", "allow"]	The action to filter rules. You can enter multiple values. Valid values: **deny**, **allow**, **dry_run**, and **modify_module**. The value dry_run indicates the rules that monitor requests. The value modify_module indicates the rules that are intended for detection modules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	[{"id": 19, "version": "19@time-1594205736", "websites": [1746], "target": "logic_expr", "pattern": {"$AND": [{"infix": {"decoded_path": "asda"}}]}, "action": "deny", "is_enabled": true, "is_expired": false, "comment": "1111", "attack_type": -1, "log_option": "Persistence", "create_time": "1594205736", "last_update_time": "1594205736", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management": null, "risk_level": 0, "extra": null}]	The returned result of the request. For more information about the **pattern** parameter in the returned result, see Fields in match conditions.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribePolicyRule
&RegionId=cn-hangzhou
&Id=1
&Enable=true
&RiskLevelFilter.1=1
&AttackTypeFilter.1=1
&PolicyActionFilter.1=deny
```

Sample success responses

`XML` format

```
<DescribePolicyRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"id": 19, "version": "19@time-1594205736", "websites": [1746], "target": "log
ic_expr", "pattern": {"$AND": [{"infix": {"decoded_path": "asda"}}]}, "action": "deny", "is
_enabled": true, "is_expired": false, "comment": "1111", "attack_type": -1, "log_option": "
Persistence", "create_time": "1594205736", "last_update_time": "1594205736", "expire_time":
null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management"
: null, "risk_level": 0, "extra": null}]</Result>
</DescribePolicyRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"id\": 19, \"version\": \"19@time-1594205736\", \"websites\": [1746], \"targ
et\": \"logic_expr\", \"pattern\": {\"$AND\": [{\"infix\": {\"decoded_path\": \"asda\"}}]},
\"action\": \"deny\", \"is_enabled\": true, \"is_expired\": false, \"comment\": \"1111\", \
"attack_type\": -1, \"log_option\": \"Persistence\", \"create_time\": \"1594205736\", \"las
t_update_time\": \"1594205736\", \"expire_time\": null, \"is_global\": false, \"forbidden_p
age_config\": null, \"priority\": 0, \"module_management\": null, \"risk_level\": 0, \"extr
a\": null}]"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.2. CreatePolicyRule

Creates a custom rule to deny, allow, or monitor requests.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreatePolicyRule	The operation that you want to perform. Set the value to CreatePolicyRule.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The ID of the region.
ForbiddenPageConfig	Json	No	{"status_code":405,"action":"response","path":""}	The configurations to block requests. The value is a string that consists of a JSON struct. The JSON struct contains the following fields: • **status_code**: the status code. This field is required. Data type: integer. Valid values: 200, 301, 302, 307, 400, 403, 404, 501, and 502. • **action**: the method to respond to the requests. This field is required. Data type: string. Valid values: **redirect** and **response**. The value redirect indicates that the system redirects the requests. The value response indicates that the system returns specific content. If **status_code** is set to 301 or 302, set **action** to **redirect**. If status_code is set to a different value, set action to **response**. • **path**: the destination address for redirection. Data type: string. If **action** is set to **redirect**, this field is required. Otherwise, leave this field empty.
Comment	String	Yes	policy-rule-1	The description of the rule.
Enable	Boolean	No	true	Specifies whether to enable the custom rule. Default value: **true**.
PolicyAction	String	Yes	deny	The action on requests. Valid values: **deny**, **allow**, and **dry_run**. The value dry_run indicates that the system allows and monitors the requests.

Parameter	Type	Required	Example	Description
AttackType	Integer	Yes	-1	The attack type in the custom rule. Valid values: **-1** (non-web attacks), **0** (SQL injection attacks), **1** (XSS attacks), **2** (CSRF attacks), **3** (SSRF attacks), **4** (denial of service attacks), **5** (backdoors), **6** (deserialization attacks), **7** (code executions), **8** (code injection attacks), **9** (command injection attacks), **10** (file uploads), **11** (file inclusions), **12** (redirection attacks), **13** (improper authorization), **14** (information leaks), **15** (unauthorized access), **16** (insecure configurations), **17** (XXE attacks), **18** (Xpath injection attacks), **19** (LDAP injection attacks), **20** (path traversal attacks), **21** (scanners), **22** (horizontal authorization bypass), **23** (vertical authorization bypass), **24** (file modifications), **25** (file reads), **26** (file deletions), **27** (logical errors), **28** (CRLF injection attacks), **29** (template injection attacks), **30** (click hijacking attacks), **31** (buffer overflows), **32** (integer overflows), **33** (format string attacks), **34** (race condition attacks), **61** (timeout errors), and **62** (unknown attacks).
RiskLevel	Integer	Yes	3	The risk level in the custom rule. Valid values: • **0**: no risks • **1**: low • **2**: medium • **3**: high
LogOption	String	Yes	log	The logging operation. Valid values: **log** and **drop**. The value log indicates that matched requests are logged. The value drop indicates that matched requests are not logged.
Pattern	Json	Yes	{"$AND": [{"$NOT": [{"infix": {"urlpath":"admin"}}]}]}	The match conditions. The value is a string that consists of a JSON struct. For information about the JSON struct, see Fields in match conditions.

Parameter	Type	Required	Example	Description
ExpireTime	Long	No	1594982409	The UNIX timestamp of when the custom rule expires. Unit: seconds. If you leave this parameter empty or set it to 0, the rule does not expire.
WebsiteIdList	RepeatList	No	[1, 2]	The ID of the website to which the custom rule applies. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of websites.

Fields in match conditions

The match conditions of a custom rule are specified in a string that consists of a JSON struct. The JSON struct contains the following fields:

```
{
  "$AND": [                    //The match conditions. This field is required. Data type: l
ist. You can specify the field value in the following default format:
    {
      "Operator":            //This field is required. Data type: string.
        "Match field": "Match content",  //This field is required. Data type: string. If th
e match content is a value, use this format.
        "Match field": {                     //This field is required. Data type: string.
If the match content is a key-value pair, use this format.
          "key": "Match field",                 //This field is required. Data type: strin
g.
          "value": "Match content"        //This field is required. Data type: string.
        }
      }
    },
    {
      "$NOT":                                      //If the operator is prefixed with not,
this field is required. Data type: string. You must specify the field value in the followin
g default format:
        {
          "Operator": {                            //This field is required. Data type: st
ring.
            "Match field": "Match content",  //This field is required. Data type: string. I
f the match content is a value, use this format. If the operator is prefixed with not, remo
ve not.
            "Match field": {                      //This field is required. Data type: stri
ng. If the match content is a key-value pair, use this format. If the operator is prefixed
with not, remove not.
              "key": "Match field",                 //This field is required. Data type: s
tring.
              "value": "Match content"                 //This field is required. Data type
: string.
            }
          }
        }
      ]
    }
  ]
}
```

Operators and match fields

The following lists describe the operators and match fields. The system does not support custom operators or match fields.

- Operators
  - **infix**: inclusion
  - **notinfix**: exclusion
  - **str**: exact match
  - **notstr**: fuzzy match
  - **re**: match based on regular expressions
  - **notre**: reverse match based on regular expressions

- **Match fields and match content types**
  - **urlpath**: the original URI in the request, which is not decoded. Match content type: value. Example: */query%20news?q=1%20or%201%3D1*.
  - **decoded_path**: the path after decoding. Match content type: value. The path is the content from the forward slash (/) to the question mark (?) in the URL.The path must be URL-decoded. Example: */query news*.
  - **decoded_query**: the query string in the URL. Match content type: value. The query string is the content from the question mark (?)to the end of the URL. The query string must be URL-decoded. Example: q=1 or 1=1.
  - **query**: the parameters in the query string. Match content type: key-value pair. The parameters are obtained by splitting the content from the question mark (?) to the end of the URL into key-value pairs. The parameters must be URL-decoded. Example: Parameter name q Parameter value 1 or 1=1.
  - **method**: the method of the HTTP request. Match content type: value. Example: GET or POST.
  - **host**: the Host field in the HTTP request header. Match content type: value.
  - **cookie_raw**: the Cookie field that is not split into key-value pairs. Match content type: value.
  - **cookie**: the cookies that are obtained by splitting the Cookie field into key-value pairs. Match content type: key-value pair.
  - **user_agent**: The User-Agent field in the HTTP request header. Match content type: value.
  - **referer**: the Referrer field in the HTTP request header. Match content type: value.
  - **content_type**: the Content-Type field in the HTTP request header. Match content type: value.
  - **remote_addr**: the actual IP address of the client. Match content type: value.
  - **x_forwarded_for**: the X-Forwarded-For field in the HTTP request header. Match content type: value.
  - **origin**: the Origin field in the HTTP request header. Match content type: value.
  - **session**: the Session content. You can configure this field only after you configure the session settings for your website. Match content type: value.
  - **request_header**: the complete header of the original HTTP request. Match content type: value.
  - **custom_header**: the HTTP request header that is split into key-value pairs. Match content type: key-value pair.
  - **request_header_length**: the length of the HTTP request header. Match content type: value.
  - **request_body_length**: the length of the HTTP request body. Match content type: value.
  - **form**: the form data in the HTTP request body. The data must be split into key-value pairs and URL-decoded. Match content type: key-value pair.
  - **file_name**: the name of the file that you want to upload in the HTTP request. Match content type: value.
  - **request_body**: the complete body of the HTTP request. Match content type: value.
  - **response_status**: the HTTP status code that the server returns. Match content type: value.
  - **response_header**: the HTTP response header that is split into key-value pairs. Match content type: key-value pair.
  - **response_body**: the complete response that the server returns. Match content type: value.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Parameter	Type	Example	Description
└Result	String	{"id": 57, "version": "57@time-1598336466", "websites": [781], "target": "logic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "abcedfgh"}}]}, "action": "deny", "is_enabled": true, "is_expired": false, "comment": "test-policy-rule-1", "attack_type": -1, "log_option": "Persistence", "create_time": "1598336466", "last_update_time": "1598336466", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management": null, "risk_level": 0, "extra": null}	The information about the added website.

Examples

Sample requests

```
https://semawaf.[RegionId].aliyuncs.com/?Action=CreatePolicyRule
&RegionId=cn-hangzhou
&ForbiddenPageConfig={"status_code":405,"action":"response","path":""}
&Comment=policy-rule-1
&Enable=true
&PolicyAction=deny
&AttackType=-1
&RiskLevel=3
&LogOption=log
&Pattern={"\$AND":[{"\$NOT":[{"infix":{"urlpath":"admin"}}]}]}
&ExpireTime=1594982409
&WebsiteIdList.1=1
```

Sample success responses

`XML` format

```
<CreatePolicyRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 57, "version": "57@time-1598336466", "websites": [781], "target": "l
ogic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "abcedfgh"}}]}, "action": "deny", "i
s_enabled": true, "is_expired": false, "comment": "test-policy-rule-1", "attack_type": -1,
"log_option": "Persistence", "create_time": "1598336466", "last_update_time": "1598336466",
"expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "mod
ule_management": null, "risk_level": 0, "extra": null}</Result>
    </TaskStatus>
</CreatePolicyRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 57, \"version\": \"57@time-1598336466\", \"websites\": [781], \"targ
et\": \"logic_expr\", \"pattern\": {\"$AND\": [{\"infix\": {\"urlpath\": \"abcedfgh\"}}]},
\"action\": \"deny\", \"is_enabled\": true, \"is_expired\": false, \"comment\": \"test-poli
cy-rule-1\", \"attack_type\": -1, \"log_option\": \"Persistence\", \"create_time\": \"15983
36466\", \"last_update_time\": \"1598336466\", \"expire_time\": null, \"is_global\": false,
\"forbidden_page_config\": null, \"priority\": 0, \"module_management\": null, \"risk_level
\": 0, \"extra\": null}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.3. EditPolicyRule

Modifies a specific custom rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditPolicyRule	The operation that you want to perform. Set the value to EditPolicyRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
ForbiddenPageConfig	Json	No	{"status_code":405,"action":"response","path":""}	The configurations to block requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **status_code**: the status code in the responses. This field is required. Data type: integer. Valid values: 200, 301, 302, 307, 400, 403, 404, 501, and 502. • **action**: the method to respond to the requests. This field is required. Data type: string. Valid values: **redirect** and **response**. The value redirect indicates that the system redirects the requests. The value response indicates that the system returns specific content. If **status_code** is set to 301 or 302, set **action** to **redirect**. If status_code is set to another value, set action to **response**. • **path**: the destination address for redirection. Data type: string. If **action** is set to **redirect**, this field is required. In other cases, leave this field unspecified.
Comment	String	Yes	policy-rule-1	The remarks.
Enable	Boolean	No	true	Specifies whether to enable the custom rule. Default value: **true**.
PolicyAction	String	Yes	deny	The action on requests. Valid values: **deny**, **allow**, and **dry_run**. The value dry_run indicates that the system allows and monitors the requests.

Parameter	Type	Required	Example	Description
AttackType	Integer	Yes	-1	The attack type in the custom rule. Valid values: **-1** (non-web attacks), **0** (SQL injection attacks), **1** (XSS attacks), **2** (CSRF attacks), **3** (SSRF attacks), **4** (denial of service attacks), **5** (backdoors), **6** (deserialization attacks), **7** (code executions), **8** (code injection attacks), **9** (command injection attacks), **10** (file uploads), **11** (file inclusions), **12** (redirection attacks), **13** (improper authorization), **14** (information leaks), **15** (unauthorized access), **16** (insecure configurations), **17** (XXE attacks), **18** (Xpath injection attacks), **19** (LDAP injection attacks), **20** (path traversal attacks), **21** (scanners), **22** (horizontal authorization bypass), **23** (vertical authorization bypass), **24** (file modifications), **25** (file reads), **26** (file deletions), **27** (logical errors), **28** (CRLF injection attacks), **29** (template injection attacks), **30** (click hijacking attacks), **31** (buffer overflows), **32** (integer overflows), **33** (format string attacks), **34** (race condition attacks), **61** (timeout errors), and **62** (unknown attacks).

Parameter	Type	Required	Example	Description
RiskLevel	Integer	Yes	3	The risk level in the custom rule. Valid values: • **0**: no risks • **1**: low • **2**: medium • **3**: high
LogOption	String	Yes	log	The logging operation. Valid values: **log** and **drop**. The value log indicates that matched requests are logged. The value drop indicates that matched requests are not logged.
Pattern	Json	Yes	{"$AND": [{"$NOT": [{"infix": {"urlpath":"admin"}}]}]}	The match conditions. This parameter is a string consisting of JSON structs. For information about the JSON structs, see Fields in match conditions.
ExpireTime	Long	No	1594982409	The expiration time of the custom rule. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. If you leave this parameter unspecified or set it to 0, the rule does not expire.
WebsiteIdList	RepeatList	No	[1, 2]	The ID of the website to which the custom rule applies. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of websites.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.

Parameter	Type	Example	Description
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
└Result	String	{"id": 57, "version": "57@time-1598336466", "websites": [781], "target": "logic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "abcedfgh"}}]}, "action": "deny", "is_enabled": true, "is_expired": false, "comment": "test-policy-rule-1", "attack_type": -1, "log_option": "Persistence", "create_time": "1598336466", "last_update_time": "1598336466", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management": null, "risk_level": 0, "extra": null}	The information about the added website.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=EditPolicyRule
&RegionId=cn-hangzhou
&Id=1
&ForbiddenPageConfig={"status_code":405,"action":"response","path":""}
&Comment=policy-rule-1
&Enable=true
&PolicyAction=deny
&AttackType=-1
&RiskLevel=3
&LogOption=log
&Pattern={"\$AND":[{"\$NOT":[{"infix":{"urlpath":"admin"}}]}]}
&ExpireTime=1594982409
&WebsiteIdList.1=1
```

Sample success responses

`XML` format

```
<EditPolicyRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 57, "version": "57@time-1598336466", "websites": [781], "target": "l
ogic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "abcedfgh"}}]}, "action": "deny", "i
s_enabled": true, "is_expired": false, "comment": "test-policy-rule-1", "attack_type": -1,
"log_option": "Persistence", "create_time": "1598336466", "last_update_time": "1598336466",
"expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "mod
ule_management": null, "risk_level": 0, "extra": null}</Result>
    </TaskStatus>
</EditPolicyRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configuration generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 57, \"version\": \"57@time-1598336466\", \"websites\": [781], \"target\": \"logic_expr\", \"pattern\": {\"$AND\": [{\"infix\": {\"urlpath\": \"abcedfgh\"}}]}, \"action\": \"deny\", \"is_enabled\": true, \"is_expired\": false, \"comment\": \"test-policy-rule-1\", \"attack_type\": -1, \"log_option\": \"Persistence\", \"create_time\": \"1598336466\", \"last_update_time\": \"1598336466\", \"expire_time\": null, \"is_global\": false, \"forbidden_page_config\": null, \"priority\": 0, \"module_management\": null, \"risk_level\": 0, \"extra\": null}"
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.5.4. TogglePolicyRule

Enables or disables a specific custom rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	TogglePolicyRule	The operation that you want to perform. Set the value to TogglePolicyRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the custom rule. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of custom rules.
ToggleAction	String	Yes	disable	Specifies the status of the custom rule. Valid values: • **enable** • **disable**

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=TogglePolicyRule
&RegionId=cn-hangzhou
&IdList.1=1
&ToggleAction=disable
```

Sample success responses

`XML` format

```
<TogglePolicyRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</TogglePolicyRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.5. DeletePolicyRule

Deletes a specific custom rule.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeletePolicyRule	The operation that you want to perform. Set the value to DeletePolicyRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the custom rule. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of custom rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeletePolicyRule
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeletePolicyRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</DeletePolicyRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.6. EditPolicyRulePriority

Modifies the priorities of custom rules for a specific website. The rules in PolicyRuleIdList are prioritized in descending order.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditPolicyRulePriority	The operation that you want to perform. Set the value to EditPolicyRulePriority.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
WebsiteId	Integer	No	101	The ID of the website for which you want to modify custom rule priorities.

Parameter	Type	Required	Example	Description
PolicyRuleIdList	Integer	No	10	The ID of the custom rule. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of custom rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode └Result	String		The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
└Result	String	{"website": 12, "policy_rule_ids": [12, 17]}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=EditPolicyRulePriority
&RegionId=cn-hangzhou
&WebsiteId=101
&PolicyRuleIdList.1=3
```

Sample success responses

`XML` format

```
<EditPolicyRulePriorityResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"website": 12, "policy_rule_ids": [12, 17]}</Result>
    </TaskStatus>
</EditPolicyRulePriorityResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"website\": 12, \"policy_rule_ids\": [12, 17]}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.7. GenerateFalsePositiveRuleCorrection

Generates correction rules based on false positives.

Request parameters

Parameter	Type	Required	Example	Description

Parameter	Type	Required	Example	Description
Action	String	Yes	GenerateFalsePositiveRuleCorrection	The operation that you want to perform. Set the value to GenerateFalsePositiveRuleCorrection.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
LogId	String	Yes	1e23f8d1-a9d2-4dd9-b7e2-424b9832183f	The ID of the log.
RuleId	String	Yes	m_sqli	The ID of the rule.
UrlPath	String	Yes	/	The path of the URL.
Host	String	Yes	www.taobao.com	The domain name.
SourceIpAddress	String	Yes	10.17.XX.XX	The source IP address.
DestinationIp	String	Yes	43.17.XX.XX	The destination IP address.
DestinationPort	Integer	Yes	80	The destination port.
RequestBody	String	No		The body of the request.
RawRequestHeader	String	Yes	GET /? id=1 or 1=1 HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: /\r\nhost: www.taobao.com\r\n\r\n	The original header of the request.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"pattern": {"decoded_path": "/", "host": "40.73.XX.XX", "remote_addr": "139.162.XX.XX"}, "action": "allow", "comment": "Clear false positives - 550877"}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=GenerateFalsePositiveRuleCorrection
&RegionId=cn-hangzhou
&LogId=1e23f8d1-a9d2-4dd9-b7e2-424b9832183f
&RuleId=m_sqli
&UrlPath=/
&Host=www.taobao.com
&SourceIpAddress=10.17.XX.XX
&DestinationIp=43.17.XX.XX
&DestinationPort=80
&RequestBody=
&RawRequestHeader=GET /? id=1 or 1=1 HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: */*\r\n
host: www.taobao.com\r\n\r\n
```

Sample success responses

`XML` format

```
<GenerateFalsePositiveRuleCorrectionResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"pattern": {"decoded_path": "/", "host": "40.73.XX.XX", "remote_addr": "139.16
2.XX.XX"}, "action": "allow", "comment": "Clear false positives - 550877"}</Result>
</GenerateFalsePositiveRuleCorrectionResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"pattern\": {\"decoded_path\": \"/\", \"host\": \"40.73.XX.XX\", \"remote_add
r\": \"139.162.XX.XX\"}, \"action\": \"allow\", \"comment\": \"Clear false positives - 5508
77\"}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.8. CreateDetectionModuleRule

Creates a rule for detection module control.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreateDetectionModuleRule	The operation that you want to perform. Set the value to CreateDetectionModuleRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
ForbiddenPageConfig	Json	No	{"status_code":405,"action":"response","path":""}	The configurations to block requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **status_code**: the status code in the responses. This field is required. Data type: integer. Valid values: 200, 301, 302, 307, 400, 403, 404, 501, and 502. • **action**: the method to respond to the requests. This field is required. Data type: string. Valid values: **redirect** and **response**. The value redirect indicates that the system redirects the requests. The value response indicates that the system returns specific content. If **status_code** is set to 301 or 302, set **action** to **redirect**. If status_code is set to another value, set action to **response**. • **path**: the destination address for redirection. Data type: string. If **action** is set to **redirect**, this field is required. In other cases, leave this field unspecified.
Comment	String	Yes	detection-module-rule-1	The remarks.
PolicyAction	String	Yes	modify_module	The action in the rule. Set the value to **modify_module**, which indicates detection module control.
Enable	Boolean	No	true	Specifies whether to enable the rule for detection module control. Default value: **true**.

Parameter	Type	Required	Example	Description
ModuleManagement	Json	Yes	{"disabled":["m_xss"],"enabled":[]}	Specifies whether to enable detection module control. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **disabled**: disables detection module control. This field is required. Data type: list. • **enabled**: enables detection module control. This filed is required. Data type: list. For more information about detection modules, see Module description.
LogOption	String	Yes	log	The logging operation. Valid values: **log** and **drop**. The value log indicates that matched requests are logged. The value drop indicates that matched requests are not logged.
Pattern	Json	Yes	{"$AND":[{"$NOT":[{"infix":{"urlpath":"admin"}}]}]}	The match conditions. This parameter is a string consisting of JSON structs. For more information about the JSON structs, see Fields in match conditions.
ExpireTime	Long	No	1594982409	The expiration time of the custom rule. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. If you leave this parameter unspecified or set it to 0, the rule does not expire.
WebsiteIdList	RepeatList	No	[1, 2]	The ID of the website to which the custom rule applies. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of websites.

Module description

Code	Description
m_sqli	SQL Injection Detection Module

Code	Description
m_xss	XSS Detection Module
m_rule	Intelligence Module
m_csrf	CSRF Detection Module
m_ssrf	SSRF Detection Module
m_php_unserialize	PHP Deserialization Detection Module
m_java_unserialize	Java Deserialization Detection Module
m_file_upload	File Upload Attack Detection Module
m_file_include	File Inclusion Attack Detection Module
m_php_code_injection	PHP Code Injection Detection Module
m_java	Java Code Injection Detection Module
m_cmd_injection	Command Injection Detection Module
m_response	Server Response Detection Module
m_scanner	Robot Detection Module
m_asp_code_injection	ASP Code Injection Detection Module
m_ssti	Template Injection Detection Module

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.

Parameter	Type	Example	Description
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
└Result	String	{"id": 58, "version": "58@time-1598338353", "websites": [], "target": "logic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "1234567"}}]}, "action": "modify_module", "is_enabled": true, "is_expired": false, "comment": "test-module-rule-1", "attack_type": -1, "log_option": "Persistence", "create_time": "1598338348", "last_update_time": "1598338353", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management": {"disabled": ["m_sqli"], "enabled": []}, "risk_level": 0, "extra": null}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[RegionId].aliyuncs.com/?Action=CreateDetectionModuleRule
&RegionId=cn-hangzhou
&ForbiddenPageConfig={"status_code":405,"action":"response","path":""}
&Comment=detection-module-rule-1
&PolicyAction=modify_module
&Enable=true
&ModuleManagement={"disabled":["m_xss"],"enabled":[]}
&LogOption=log
&Pattern={"\$AND":[{"\$NOT":[{"infix":{"urlpath":"admin"}}]}]}
&ExpireTime=1594982409
&WebsiteIdList.1=1
```

Sample success responses

`XML` format

```
<CreateDetectionModuleRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 58, "version": "58@time-1598338353", "websites": [], "target": "logi
c_expr", "pattern": {"$AND": [{"infix": {"urlpath": "1234567"}}]}, "action": "modify_module
", "is_enabled": true, "is_expired": false, "comment": "test-module-rule-1", "attack_type":
-1, "log_option": "Persistence", "create_time": "1598338348", "last_update_time": "15983383
53", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0,
"module_management": {"disabled": ["m_sqli"], "enabled": []}, "risk_level": 0, "extra": nul
l}</Result>
    </TaskStatus>
</CreateDetectionModuleRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configuration generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 58, \"version\": \"58@time-1598338353\", \"websites\": [], \"target\": \"logic_expr\", \"pattern\": {\"$AND\": [{\"infix\": {\"urlpath\": \"1234567\"}}]}, \"action\": \"modify_module\", \"is_enabled\": true, \"is_expired\": false, \"comment\": \"test-module-rule-1\", \"attack_type\": -1, \"log_option\": \"Persistence\", \"create_time\": \"1598338348\", \"last_update_time\": \"1598338353\", \"expire_time\": null, \"is_global\": false, \"forbidden_page_config\": null, \"priority\": 0, \"module_management\": {\"disabled\": [\"m_sqli\"], \"enabled\": []}, \"risk_level\": 0, \"extra\": null}"
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.5.9. EditDetectionModuleRule

Modifies a specific rule for detection module control.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditDetectionModuleRule	The operation that you want to perform. Set the value to EditDetectionModuleRule.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	Yes	1	The ID of the rule for detection module control.

Parameter	Type	Required	Example	Description
ForbiddenPageConfig	Json	No	{"status_code":405,"action":"response","path":""}	The configurations to block requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **status_code**: the status code in the responses. This field is required. Data type: integer. Valid values: 200, 301, 302, 307, 400, 403, 404, 501, and 502. • **action**: the method to respond to the requests. This field is required. Data type: string. Valid values: **redirect** and **response**. The value redirect indicates that the system redirects the requests. The value response indicates that the system returns specific content. If **status_code** is set to 301 or 302, set **action** to **redirect**. If status_code is set to another value, set action to **response**. • **path**: the destination address for redirection. Data type: string. If **action** is set to **redirect**, this field is required. In other cases, leave this field unspecified.
Comment	String	Yes	detection-module-rule-1	The remarks.
PolicyAction	String	Yes	modify_module	The action in the rule. Set the value to **modify_module**, which indicates detection module control.
Enable	Boolean	No	true	Specifies whether to enable the rule for detection module control. Default value: **true**.

Parameter	Type	Required	Example	Description
ModuleManagement	Json	Yes	{"disabled":["m_xss"],"enabled":[]}	Specifies whether to enable detection module control. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **disabled**: disables detection module control. This field is required. Data type: list. • **enabled**: enables detection module control. This field is required. Data type: list. For more information about detection modules, see Module description.
LogOption	String	Yes	log	The logging operation. Valid values: **log** and **drop**. The value log indicates that matched requests are logged. The value drop indicates that matched requests are not logged.
Pattern	Json	Yes	{"$AND":[{"$NOT":[{"infix":{"urlpath":"admin"}}]}]}	The match conditions. This parameter is a string consisting of JSON structs. For more information about the JSON structs, see Fields in match conditions.
ExpireTime	Long	No	1594982409	The expiration time of the custom rule. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC. If you leave this parameter unspecified or set it to 0, the rule does not expire.
WebsiteIdList	RepeatList	No	[1, 2]	The ID of the website to which the custom rule applies. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of websites.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Parameter	Type	Example	Description
└Result	String	{"id": 58, "version": "58@time-1598338353", "websites": [], "target": "logic_expr", "pattern": {"$AND": [{"infix": {"urlpath": "1234567"}}]}, "action": "modify_module", "is_enabled": true, "is_expired": false, "comment": "test-module-rule-1", "attack_type": -1, "log_option": "Persistence", "create_time": "1598338348", "last_update_time": "1598338353", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0, "module_management": {"disabled": ["m_sqli"], "enabled": []}, "risk_level": 0, "extra": null}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[RegionId].aliyuncs.com/?Action=EditDetectionModuleRule
&RegionId=cn-hangzhou
&Id=1
&ForbiddenPageConfig={"status_code":405,"action":"response","path":""}
&Comment=detection-module-rule-1
&PolicyAction=modify_module
&Enable=true
&ModuleManagement={"disabled":["m_xss"],"enabled":[]}
&LogOption=log
&Pattern={"\$AND":[{"\$NOT":[{"infix":{"urlpath":"admin"}}]}]}
&ExpireTime=1594982409
&WebsiteIdList.1=1
```

Sample success responses

`XML` format

```
<EditDetectionModuleRuleResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"id": 58, "version": "58@time-1598338353", "websites": [], "target": "logi
c_expr", "pattern": {"$AND": [{"infix": {"urlpath": "1234567"}}]}, "action": "modify_module
", "is_enabled": true, "is_expired": false, "comment": "test-module-rule-1", "attack_type":
-1, "log_option": "Persistence", "create_time": "1598338348", "last_update_time": "15983383
53", "expire_time": null, "is_global": false, "forbidden_page_config": null, "priority": 0,
"module_management": {"disabled": ["m_sqli"], "enabled": []}, "risk_level": 0, "extra": nul
l}</Result>
    </TaskStatus>
</EditDetectionModuleRuleResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"id\": 58, \"version\": \"58@time-1598338353\", \"websites\": [], \"target\
": \"logic_expr\", \"pattern\": {\"$AND\": [{\"infix\": {\"urlpath\": \"1234567\"}}]}, \"ac
tion\": \"modify_module\", \"is_enabled\": true, \"is_expired\": false, \"comment\": \"test
-module-rule-1\", \"attack_type\": -1, \"log_option\": \"Persistence\", \"create_time\": \"
1598338348\", \"last_update_time\": \"1598338353\", \"expire_time\": null, \"is_global\": f
alse, \"forbidden_page_config\": null, \"priority\": 0, \"module_management\": {\"disabled\
": [\"m_sqli\"], \"enabled\": []}, \"risk_level\": 0, \"extra\": null}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.10. EditPolicyRuleWebsiteBinding

Modifies the binding relationship between a specific website and its custom rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditPolicyRuleWebsiteBinding	The operation that you want to perform. Set the value to EditPolicyRuleWebsiteBinding.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
WebsiteId	Integer	No	101	The ID of the website for which you want to modify the binding relationship.
PolicyRuleIdList	Integer	No	10	The ID of the custom rule. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of custom rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.

Parameter	Type	Example	Description
└SuccessCode	└Result	String	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.
└Result	String	{"website": 12, "policy_rule_ids": [12, 17]}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=EditPolicyRuleWebsiteBinding
&RegionId=cn-hangzhou
&WebsiteId=101
&PolicyRuleIdList.1=3
```

Sample success responses

`XML` format

```
<EditPolicyRuleWebsiteBindingResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
        <Result>{"website": 12, "policy_rule_ids": [12, 17]}</Result>
    </TaskStatus>
</EditPolicyRuleWebsiteBindingResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect.",
    "Result":"{\"website\": 12, \"policy_rule_ids\": [12, 17]}"
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.5.11. DeletePolicyRuleWebsiteBinding

Deletes the binding relationship between a specific website and specific custom rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeletePolicyRuleWebsiteBinding	The operation that you want to perform. Set the value to DeletePolicyRuleWebsiteBinding.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
WebsiteId	Integer	No	101	The ID of the website for which you want to modify the binding relationship.
PolicyRuleIdList	Integer	No	10	The ID of the custom rule. You can enter multiple IDs. You can call the DescribePolicyRule operation to query the IDs of custom rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.

Parameter	Type	Example	Description
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	└Result	String	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeletePolicyRuleWebsiteBinding
&RegionId=cn-hangzhou
&WebsiteId=101
&PolicyRuleId=12
```

Sample success responses

`XML` format

```
<DeletePolicyRuleWebsiteBindingResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</DeletePolicyRuleWebsiteBindingResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.6. Protection policies

19.1.4.6.1. DescribePolicyGroup

Queries the information about protection policies.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribePolicyGroup	The operation that you want to perform. Set the value to DescribePolicyGroup.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	101	The ID of the protection policy.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
		DescribePolicyGroup": "[{"id": 6, "is_timeout_enabled": true, "name": "Default Policy Strategy", "create_time": "1589275411", "last_update_time": "1594607697", "is_default": true, "modules_state": true, "response_detection_state": true, "response_detection_max_body_size": 1024, "response_detection_generate_log": false, "request_detection_max_body_size": 1024, "detection_timeout_threshold": 1000, "log_detection_timeout_event": true, "forbidden_page_config": {"action": "response",	

Parameter	Type	Example	Description
Result	String	"status_code": 405, "path": ""}, "modules_detection_config": {"m_cmd_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_scanner": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"robot_types": ["scanner"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_include": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_code_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_response": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"error_types": ["directory indexing", "SQL execution error", "server exception"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_sqli": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_non_injection_sql": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_csrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_upload": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_rule": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"info_leak_types": ["test file", "backup file", "code repository", "server sensitive file"], "check_info_leak_by_rsp": false, "detection_configure": ["detect_phpinfo", "detect_admin_page",	The returned result of the request.

Parameter	Type	Example	Description
		"detect_backdoor", "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_apache", "detect_xml", "detect_struts2", "detect_java_vuln", "detect_php168", "detect_wordpress", "detect_directory_traversal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "detect_jenkins", "detect_ecshop", "detect_nexus", "detect_drupal", "detect_ghostscript", "detect_atlassian", "detect_weblogic", "detect_coremail", "detect_phpcms", "detect_spring", "detect_southidc", "detect_fastjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa", "detect_jackson", "detect_xstream", "detect_activemq", "detect_solr"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_ssrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_xss": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_complete_html": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_asp_code_injection": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}, "m_ssti": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}}, "misc_detection_config": {"decode_config": {"decode_methods": ["url decode", "JSON", "base64", "hex", "eval", "XML", "utf7"]}}}]	

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribePolicyGroup
&RegionId=cn-hangzhou
&Id=1
```

Sample success responses

`XML` format

```
<DescribePolicyGroupResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>DescribePolicyGroup": "[{"id": 6, "is_timeout_enabled": true, "name": "Default Policy Strategy", "create_time": "1589275411", "last_update_time": "1594607697", "is_default": true, "modules_state": true, "response_detection_state": true, "response_detection_max_body_size": 1024, "response_detection_generate_log": false, "request_detection_max_body_size": 1024, "detection_timeout_threshold": 1000, "log_detection_timeout_event": true, "forbidden_page_config": {"action": "response", "status_code": 405, "path": ""}, "modules_detection_config": {"m_cmd_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_ris
```

k_enable_log": 1, "high_risk_action": "deny"}, "m_scanner": {"low_risk_enable_log": 1, "hig
h_risk_enable_log": 1, "detect_config": {"robot_types": ["scanner"]}, "low_risk_action": "c
ontinue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log":
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bled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_code_injection": {"
low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file":
true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled",
"medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_response": {"low_risk_enable_l
og": 1, "high_risk_enable_log": 1, "detect_config": {"error_types": ["directory indexing",
"SQL execution error", "server exception"]}, "low_risk_action": "continue", "medium_risk_ac
tion": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "d
eny"}, "m_java_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_ris
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nable_log": 1, "high_risk_action": "deny"}, "m_sqli": {"low_risk_enable_log": 1, "high_risk
_enable_log": 1, "detect_config": {"detect_non_injection_sql": true}, "low_risk_action": "c
ontinue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1
, "high_risk_action": "deny"}, "m_csrf": {"low_risk_enable_log": 1, "high_risk_enable_log":
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ow_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_r
isk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action
": "deny"}, "m_rule": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config"
: {"info_leak_types": ["test file", "backup file", "code repository", "server sensitive fil
e"], "check_info_leak_by_rsp": false, "detection_configure": ["detect_phpinfo", "detect_adm
in_page", "detect_backdoor", "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_a
pache", "detect_xml", "detect_struts2", "detect_java_vuln", "detect_php168", "detect_wordpr
ess", "detect_directory_traversal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "
detect_jenkins", "detect_ecshop", "detect_nexus", "detect_drupal", "detect_ghostscript", "d
etect_atlassian", "detect_weblogic", "detect_coremail", "detect_phpcms", "detect_spring", "
detect_southidc", "detect_fastjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa"
, "detect_jackson", "detect_xstream", "detect_activemq", "detect_solr"]}, "low_risk_action"
: "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log
": 1, "high_risk_action": "deny"}, "m_ssrf": {"low_risk_enable_log": 1, "high_risk_enable_l
og": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled"
, "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_xss": {"low_risk_enable_log"
: 1, "high_risk_enable_log": 1, "detect_config": {"detect_complete_html": true}, "low_risk_
action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_ena
ble_log": 1, "high_risk_action": "deny"}, "m_asp_code_injection": {"state": "disabled", "hi
gh_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medi
um_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_co
nfig": {}}, "m_ssti": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_l
og": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "
continue", "low_risk_enable_log": 1, "detect_config": {}}}, "misc_detection_config": {"deco
de_config": {"decode_methods": ["url decode", "JSON", "base64", "hex", "eval", "XML", "utf7
"]}}}}]</Result>
</DescribePolicyGroupResponse>

`JSON` format


```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"DescribePolicyGroup\": \"[{\"id\": 6, \"is_timeout_enabled\": true, \"name\": \
"Default Policy Strategy\", \"create_time\": \"1589275411\", \"last_update_time\": \"159460
7697\", \"is_default\": true, \"modules_state\": true, \"response_detection_state\": true,
\"response_detection_max_body_size\": 1024, \"response_detection_generate_log\": false, \"r
equest_detection_max_body_size\": 1024, \"detection_timeout_threshold\": 1000, \"log_detect
ion_timeout_event\": true, \"forbidden_page_config\": {\"action\": \"response\", \"status_c
ode\": 405, \"path\": \"\"}, \"modules_detection_config\": {\"m_cmd_injection\": {\"low_ris
k_enable_log\": 1, \"high_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"medium
_risk_action\": \"continue\", \"state\": \"disabled\", \"medium_risk_enable_log\": 1, \"hig
h_risk_action\": \"deny\"}, \"m_scanner\": {\"low_risk_enable_log\": 1, \"high_risk_enable_
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log\": 1, \"high_risk_action\": \"deny\"}, \"m_file_include\": {\"low_risk_enable_log\": 1,
\"high_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"c
ontinue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"d
eny\"}, \"m_php_code_injection\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1,
\"detect_config\": {\"detect_upload_file\": true}, \"low_risk_action\": \"continue\", \"med
ium_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"h
igh_risk_action\": \"deny\"}, \"m_response\": {\"low_risk_enable_log\": 1, \"high_risk_enab
le_log\": 1, \"detect_config\": {\"error_types\": [\"directory indexing\", \"SQL execution
error\", \"server exception\"]}, \"low_risk_action\": \"continue\", \"medium_risk_action\":
\"continue\", \"state\": \"disabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\":
\"deny\"}, \"m_java_unserialize\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1
, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\": \"ena
bled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_sqli\": {\"low_
risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"detect_config\": {\"detect_non_injecti
on_sql\": true}, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \
"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_
csrf\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"low_risk_action\": \"co
ntinue\", \"medium_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_risk_enabl
e_log\": 1, \"high_risk_action\": \"deny\"}, \"m_java\": {\"low_risk_enable_log\": 1, \"hig
h_risk_enable_log\": 1, \"detect_config\": {\"detect_upload_file\": true}, \"low_risk_actio
n\": \"continue\", \"medium_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_r
isk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_file_upload\": {\"low_risk_enable
_log\": 1, \"high_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"medium_risk_ac
tion\": \"continue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_ac
tion\": \"deny\"}, \"m_php_unserialize\": {\"low_risk_enable_log\": 1, \"high_risk_enable_l
og\": 1, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\"
: \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_rule\":
{\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"detect_config\": {\"info_leak_t
ypes\": [\"test file\", \"backup file\", \"code repository\", \"server sensitive file\"], \
"check_info_leak_by_rsp\": false, \"detection_configure\": [\"detect_phpinfo\", \"detect_ad
min_page\", \"detect_backdoor\", \"detect_php_vuln\", \"detect_nginx\", \"detect_dedecms\",
\"detect_apache\", \"detect_xml\", \"detect_struts2\", \"detect_java_vuln\", \"detect_php16
8\", \"detect_wordpress\", \"detect_directory_traversal\", \"detect_iis\", \"detect_gogs_gi
tea\", \"detect_thinkphp\", \"detect_jenkins\", \"detect_ecshop\", \"detect_nexus\", \"dete
ct_drupal\", \"detect_ghostscript\", \"detect_atlassian\", \"detect_weblogic\", \"detect_co
remail\", \"detect_phpcms\", \"detect_spring\", \"detect_southidc\", \"detect_fastjson\", \
"detect_tbk_dvr\", \"detect_joomla\", \"detect_ecology_oa\", \"detect_jackson\", \"detect_x
stream\", \"detect_activemq\", \"detect_solr\"]}, \"low_risk_action\": \"continue\", \"medi
```

```
um_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"hi
gh_risk_action\": \"deny\"}, \"m_ssrf\": {\"low_risk_enable_log\": 1, \"high_risk_enable_lo
g\": 1, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\":
\"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_xss\": {\"
low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"detect_config\": {\"detect_complet
e_html\": true}, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \
"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_
asp_code_injection\": {\"state\": \"disabled\", \"high_risk_action\": \"deny\", \"high_risk
_enable_log\": 1, \"medium_risk_action\": \"continue\", \"medium_risk_enable_log\": 1, \"lo
w_risk_action\": \"continue\", \"low_risk_enable_log\": 1, \"detect_config\": {}}, \"m_ssti
\": {\"state\": \"disabled\", \"high_risk_action\": \"deny\", \"high_risk_enable_log\": 1,
\"medium_risk_action\": \"continue\", \"medium_risk_enable_log\": 1, \"low_risk_action\": \
"continue\", \"low_risk_enable_log\": 1, \"detect_config\": {}}}, \"misc_detection_config\"
: {\"decode_config\": {\"decode_methods\": [\"url decode\", \"JSON\", \"base64\", \"hex\",
\"eval\", \"XML\", \"utf7\"]}}}]"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.6.2. CreatePolicyGroup

Creates a protection policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	CreatePolicyGroup	The operation that you want to perform. Set the value to CreatePolicyGroup.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
PolicyGroupName	String	Yes	Loose protection policy	The name of the protection policy.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
		{"id": 75, "is_timeout_enabled": true, "name": "policy-group-test", "create_time": "1594695152", "last_update_time": "1594695152", "is_default": false, "modules_state": true, "response_detection_state": true, "response_detection_max_body_size": 1024, "response_detection_generate_log": false, "request_detection_max_body_size": 1024,	

Parameter	Type	Example	Description
Result	String	"detection_timeout_threshold": 1000, "log_detection_timeout_event": true, "forbidden_page_config": {"action": "response", "status_code": 405, "path": ""}, "modules_detection_config": {"m_cmd_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_scanner": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"robot_types": ["scanner"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_include": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_code_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_response": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"error_types": ["directory indexing", "SQL execution error", "server exception"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_sqli": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_non_injection_sql": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_csrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_upload": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_rule": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"info_leak_types": ["test file", "backup	The returned result of the request.

Parameter	Type	Example	Description
		file", "code repository", "server sensitive file"], "check_info_leak_by_rsp": false, "detection_configure": ["detect_phpinfo", "detect_admin_page", "detect_backdoor", "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_apache", "detect_xml", "detect_struts2", "detect_java_vuln", "detect_php168", "detect_wordpress", "detect_directory_traversal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "detect_jenkins", "detect_ecshop", "detect_nexus", "detect_drupal", "detect_ghostscript", "detect_atlassian", "detect_weblogic", "detect_coremail", "detect_phpcms", "detect_spring", "detect_southidc", "detect_fastjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa", "detect_jackson", "detect_xstream", "detect_activemq", "detect_solr"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_ssrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_xss": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_complete_html": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_asp_code_injection": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}, "m_ssti": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}}, "misc_detection_config": {"decode_config": {"decode_methods": ["url decode", "JSON", "base64", "hex", "eval", "XML", "utf7"]}}}	

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=CreatePolicyGroup
&RegionId=cn-hangzhou
&PolicyGroupName=Loose protection policy
```

Sample success responses

`XML` format

```
<CreatePolicyGroupResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"id": 75, "is_timeout_enabled": true, "name": "policy-group-test", "create_tim
e": "1594695152", "last_update_time": "1594695152", "is_default": false, "modules_state": t
rue, "response_detection_state": true, "response_detection_max_body_size": 1024, "response_
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```

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, "high_risk_action": "deny"}, "m_response": {"low_risk_enable_log": 1, "high_risk_enable_l
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, "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_apache", "detect_xml", "dete
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versal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "detect_jenkins", "detect_ec
shop", "detect_nexus", "detect_drupal", "detect_ghostscript", "detect_atlassian", "detect_w
eblogic", "detect_coremail", "detect_phpcms", "detect_spring", "detect_southidc", "detect_f
astjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa", "detect_jackson", "detect
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g": 1, "detect_config": {}}}, "misc_detection_config": {"decode_config": {"decode_methods":
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</CreatePolicyGroupResponse>

`JSON` format


```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"id\": 75, \"is_timeout_enabled\": true, \"name\": \"policy-group-test\", \"c
reate_time\": \"1594695152\", \"last_update_time\": \"1594695152\", \"is_default\": false,
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\": 1024, \"detection_timeout_threshold\": 1000, \"log_detection_timeout_event\": true, \"f
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}, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\": \"di
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on\": \"deny\"}, \"m_java\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"de
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xml\", \"detect_struts2\", \"detect_java_vuln\", \"detect_php168\", \"detect_wordpress\", \
"detect_directory_traversal\", \"detect_iis\", \"detect_gogs_gitea\", \"detect_thinkphp\",
\"detect_jenkins\", \"detect_ecshop\", \"detect_nexus\", \"detect_drupal\", \"detect_ghosts
cript\", \"detect_atlassian\", \"detect_weblogic\", \"detect_coremail\", \"detect_phpcms\",
\"detect_spring\", \"detect_southidc\", \"detect_fastjson\", \"detect_tbk_dvr\", \"detect_j
oomla\", \"detect_ecology_oa\", \"detect_jackson\", \"detect_xstream\", \"detect_activemq\"
, \"detect_solr\"]}, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\
```

", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_ssrf\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_xss\": {\"low_risk_enable_log\": 1, \"high_risk_enable_log\": 1, \"detect_config\": {\"detect_complete_html\": true}, \"low_risk_action\": \"continue\", \"medium_risk_action\": \"continue\", \"state\": \"enabled\", \"medium_risk_enable_log\": 1, \"high_risk_action\": \"deny\"}, \"m_asp_code_injection\": {\"state\": \"disabled\", \"high_risk_action\": \"deny\", \"high_risk_enable_log\": 1, \"medium_risk_action\": \"continue\", \"medium_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"low_risk_enable_log\": 1, \"detect_config\": {}}, \"m_ssti\": {\"state\": \"disabled\", \"high_risk_action\": \"deny\", \"high_risk_enable_log\": 1, \"medium_risk_action\": \"continue\", \"medium_risk_enable_log\": 1, \"low_risk_action\": \"continue\", \"low_risk_enable_log\": 1, \"detect_config\": {}}}, \"misc_detection_config\": {\"decode_config\": {\"decode_methods\": [\"url decode\", \"JSON\", \"base64\", \"hex\", \"eval\", \"XML\", \"utf7\"]}}}"
}

Error codes

For a list of error codes, see Error codes.

19.1.4.6.3. EditPolicyGroup

Modifies a specific protection policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditPolicyGroup	The operation that you want to perform. Set the value to EditPolicyGroup.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	Yes	1	The ID of the protection policy. You can call the DescribePolicyGroup operation to query the IDs of protection policies.

Parameter	Type	Required	Example	Description
ForbiddenPageConfig	Json	Yes	{"status_code":405,"action":"response","path":""}	The configurations to block requests. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **status_code**: the status code in the responses. This field is required. Data type: integer. Valid values: 200, 301, 302, 307, 400, 403, 404, 501, and 502. • **action**: the method to respond to the requests. This field is required. Data type: string. Valid values: **redirect** and **response**. The value redirect indicates that the system redirects the requests. The value response indicates that the system returns specific content. If **status_code** is set to 301 or 302, set **action** to **redirect**. If status_code is set to another value, set action to **response**. • **path**: the destination address for redirection. Data type: string. If **action** is set to **redirect**, this field is required. In other cases, leave this field unspecified.

Parameter	Type	Required	Example	Description
ResponseDetection	Boolean	Yes	true	Specifies whether to enable response detection. Valid values: • **true** • **false**
ResponseDetectionLog	Boolean	No	false	Specifies whether to record response content in attack detection logs. Default value: **false**. Valid values: • **true** • **false**
ResponseDetectionMaxBody	Integer	Yes	1024	The maximum size of a response body for detection. Unit: KB.
RequestDetectionMaxBody	Integer	Yes	1024	The maximum size of a request body for detection. Unit: KB.
DetectionTimeout	Boolean	Yes	true	Specifies whether to enable detection timeout. Valid values: • **true** • **false**
DetectionTimeoutThreshold	Integer	Yes	1000	The detection timeout period. Unit: ms. If the DetectionTimeout parameter is set to **true**, this parameter is required.
DetectionTimeoutLog	Boolean	Yes	true	Specifies whether to record detection timeout in attack detection logs. If the DetectionTimeout parameter is set to **false**, this parameter is unavailable.
				The configurations of the attack detection module.

Parameter	Type	Required	Example	Description
			{"m_cmd_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_scanner": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"robot_types": ["scanner"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_include": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_code_injection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_response": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"error_types": ["directory indexing", "SQL	You can call the DescribePolicyGroup operation to query the configurations. We recommend that you use the configurations in the query result. The value is a string that consists of a JSON struct. The JSON struct contains the following fields: • **detect_config**: the configurations of the attack detection module. This field is required. Data type: string. • **high_risk_action**: the action on requests when the upper threshold for blocking is triggered. This field is required. Data type: string. Valid values: **deny** and **continue**. The value deny indicates that requests are blocked. The value continue indicates that requests are not blocked. If the **high_risk_action**, **medium_risk_action**, and **low_risk_action** fields are all set to **deny**, all requests are blocked. If all the three fields are set to **continue**, no requests are blocked. • **medium_risk_action**: the action on requests when the medium threshold for blocking is triggered. This field is required. Data

Parameter	Type	Required	Example	Description
DetectionModuleConfig	Json	Yes	execution error", "server exception"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_sqli": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_non_injection_sql": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_csrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_upload": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_rule": {"low_risk_enable_log": 1, "high_risk_enable_log": 1,	type: string. Valid values: **deny** and **continue**. The value deny indicates that requests are blocked. The value continue indicates that requests are not blocked. If the **high_risk_action** and **medium_risk_action** fields are set to **deny** and the **low_risk_action** field is set to **continue**, high-risk and medium-risk requests are blocked. If all the three fields are set to **continue**, no requests are blocked. • **low_risk_action**: the action on requests when the lower threshold for blocking is triggered. This field is required. Data type: string. Valid values: **deny** and **continue**. The value deny indicates that requests are blocked. The value continue indicates that requests are not blocked. If the **high_risk_action** field is set to **deny** and the **medium_risk_action** and **low_risk_action** fields are set to **continue**, high-risk requests are blocked. If all the three fields are set to **continue**, no requests are blocked.

Parameter	Type	Required	Example	Description
			"detect_config": {"info_leak_types": ["test file", "backup file", "code repository", "server sensitive file"], "check_info_leak_by_rsp": false, "detection_configure": ["detect_phpinfo", "detect_admin_page", "detect_backdoor", "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_apache", "detect_xml", "detect_struts2", "detect_java_vuln", "detect_php168", "detect_wordpress", "detect_directory_traversal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "detect_jenkins", "detect_ecshop", "detect_nexus", "detect_drupal", "detect_ghostscript", "detect_atlassian", "detect_weblogic", "detect_coremail", "detect_phpcms", "detect_spring", "detect_southidc", "detect_fastjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa", "detect_jackson", "detect_xstream", "detect_activemq", "detect_solr"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_ssrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_xss": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_complete_html": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_asp_code_injection": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1,	• **high_risk_enable_log**: specifies whether to enable logging when the upper threshold is triggered. This field is required. Data type: integer. Valid values: **0** and **1**. The value 0 indicates that logs are not recorded. The value 1 indicates that logs are recorded. If the **high_risk_enable_log**, **medium_risk_enable_log**, and **low_risk_enable_log** fields are all set to**1**, all logs are recorded. If all the three fields are set to **0**, no logs are recorded. • **medium_risk_enable_log**: specifies whether to enable logging when the medium threshold is triggered. This field is required. Data type: integer. Valid values: **0** and **1**. The value 0 indicates that logs are not recorded. The value 1 indicates that logs are recorded. If the **high_risk_enable_log** and **medium_risk_enable_log** fields are set to **1** and the **low_risk_enable_log** field is set to **0**, high-risk and medium-risk logs are recorded. If all the three fields are set to **0**, no logs are recorded. • **low_risk_enable_log**: specifies

Parameter	Type	Required	Example	Description
			"medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}, "m_ssti": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}}	whether to enable logging when the lower threshold is triggered. This field is required. Data type: integer. Valid values: **0** and **1**. The value 0 indicates that logs are not recorded. The value 1 indicates that logs are recorded. If the **high_risk_enable_log** field is set to **1** and the **medium_risk_enable_log** and **low_risk_enable_log** fields are set to **0**, high-risk logs are recorded. If all the three fields are set to **0**, no logs are recorded. • **state**: specifies whether to enable the attack detection module. This field is required. Data type: string. Valid values: **enabled** and **disabled**.

Parameter	Type	Required	Example	Description
MiscModuleConfig	Json	Yes	{"decode_config":{"decode_methods":["url decode","JSON","base64","hex","eval","XML","PHP deserialize","utf7"]}}	The configurations of other modules. The value is a string that consists of JSON arrays. The value is a string that consists of a JSON struct. The JSON struct contains the following fields: **decode_methods**: This field is required. Valid values: **url decode** (URL decoding), **JSON** (JSON parsing), **base64** (Base64 decoding), **hex** (hexadecimal conversion), **eval** (slash unescaping), **XML** (XML parsing), **PHP deserialize** (parsing of PHP serialized objects), and **utf7** (UTF-7 decoding).

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		The returned information.
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task. The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.

Parameter	Type	Example	Description
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task. You can ignore this reserved parameter.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[RegionId].aliyuncs.com/?Action=EditPolicyGroup
&RegionId=cn-hangzhou
&Id=1
&ForbiddenPageConfig={"status_code":405,"action":"response","path":""}
&ResponseDetection=true
&ResponseDetectionLog=true
&ResponseDetectionMaxBody=1024
&RequestDetectionMaxBody=1024
&DetectionTimeout=true
&DetectionTimeoutThreshold=1000
&DetectionTimeoutLog=true
&DetectionModuleConfig={"m_cmd_injection": {"low_risk_enable_log": 1, "high_risk_enable_log
": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "disabled",
"medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_scanner": {"low_risk_enable_lo
g": 1, "high_risk_enable_log": 1, "detect_config": {"robot_types": ["scanner"]}, "low_risk_
action": "continue", "medium_risk_action": "continue", "state": "disabled", "medium_risk_en
able_log": 1, "high_risk_action": "deny"}, "m_file_include": {"low_risk_enable_log": 1, "hi
gh_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "s
tate": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_code_inj
ection": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_up
load_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state"
: "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_response": {"low_
risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"error_types": ["director
y indexing", "SQL execution error", "server exception"]}, "low_risk_action": "continue", "m
edium_risk_action": "continue", "state": "disabled", "medium_risk_enable_log": 1, "high_ris
k_action": "deny"}, "m_java_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log"
: 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "
medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_sqli": {"low_risk_enable_log":
1, "high_risk_enable_log": 1, "detect_config": {"detect_non_injection_sql": true}, "low_ris
k_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_e
nable_log": 1, "high_risk_action": "deny"}, "m_csrf": {"low_risk_enable_log": 1, "high_risk
```

_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_java": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_upload_file": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_file_upload": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_php_unserialize": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_rule": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"info_leak_types": ["test file", "backup file", "code repository", "server sensitive file"], "check_info_leak_by_rsp": false, "detection_configure": ["detect_phpinfo", "detect_admin_page", "detect_backdoor", "detect_php_vuln", "detect_nginx", "detect_dedecms", "detect_apache", "detect_xml", "detect_struts2", "detect_java_vuln", "detect_php168", "detect_wordpress", "detect_directory_traversal", "detect_iis", "detect_gogs_gitea", "detect_thinkphp", "detect_jenkins", "detect_ecshop", "detect_nexus", "detect_drupal", "detect_ghostscript", "detect_atlassian", "detect_weblogic", "detect_coremail", "detect_phpcms", "detect_spring", "detect_southidc", "detect_fastjson", "detect_tbk_dvr", "detect_joomla", "detect_ecology_oa", "detect_jackson", "detect_xstream", "detect_activemq", "detect_solr"]}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_ssrf": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_xss": {"low_risk_enable_log": 1, "high_risk_enable_log": 1, "detect_config": {"detect_complete_html": true}, "low_risk_action": "continue", "medium_risk_action": "continue", "state": "enabled", "medium_risk_enable_log": 1, "high_risk_action": "deny"}, "m_asp_code_injection": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}, "m_ssti": {"state": "disabled", "high_risk_action": "deny", "high_risk_enable_log": 1, "medium_risk_action": "continue", "medium_risk_enable_log": 1, "low_risk_action": "continue", "low_risk_enable_log": 1, "detect_config": {}}}
&MiscModuleConfig={"decode_config":{"decode_methods":["url decode","JSON","base64","hex","eval","XML","PHP deserialize","utf7"]}}

Sample success responses

`XML` format


```
<EditPolicyGroupResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuration generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</EditPolicyGroupResponse>
```


`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configuration generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.6.4. DeletePolicyGroup

Deletes a specific protection policy.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeletePolicyGroup	The operation that you want to perform. Set the value to DeletePolicyGroup.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the protection policy. You can enter multiple IDs. You can call the DescribePolicyGroup operation to query the IDs of protection policies.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String		The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeletePolicyGroup
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeletePolicyGroupResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</DeletePolicyGroupResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7. Protection logs

19.1.4.7.1. QueryAsyncTaskStatus

Queries the status of an asynchronous task.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAsyncTaskStatus	The operation that you want to perform. Set the value to QueryAsyncTaskStatus.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
TaskId	String	Yes	11c745fc-1d66-40ea-90d7-7e9a12b987b2	The ID of the asynchronous task.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
TaskStatus	Struct		
└TaskId	String	c68646a1-58f8-4b75-828a-a2d3b19b382a	The ID of the task.
└Time	String	1593593692	The time when the task status message was generated. This value is a UNIX timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
└TaskList	String	["Website-related configuration generation", "Policy-related configuration generation"]	The descriptions of the task. This value is returned only for asynchronous tasks.
└StatusMessage	String	The configuration is in effect.	The status message of the task.
└SuccessCode	String	1	The status code of the task. Valid values: • **0**: The task fails. • **1**: The task is successful. • **2**: The task is not started.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAsyncTaskStatus
&RegionId=cn-hangzhou
&TaskId=11c745fc-1d66-40ea-90d7-7e9a12b987b2
```

Sample success responses

`XML` format

```
<QueryAsyncTaskStatusResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <TaskStatus>
        <TaskId>c68646a1-58f8-4b75-828a-a2d3b19b382a</TaskId>
        <Time>1593593692</Time>
        <TaskList>["Website-related configuration generation", "Policy-related configuratio
n generation"]</TaskList>
        <StatusMessage>The configuration is in effect.</StatusMessage>
        <SuccessCode>1</SuccessCode>
    </TaskStatus>
</QueryAsyncTaskStatusResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "TaskStatus":{
    "TaskId":"c68646a1-58f8-4b75-828a-a2d3b19b382a",
    "TaskList":"[\"Website-related configuration generation\", \"Policy-related configurati
on generation\"]",
    "SuccessCode":"1",
    "Time":"1593593692",
    "StatusMessage":"The configuration is in effect."
  }
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7.2. QueryAttackDetectionLog

Queries attack detection logs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAttackDetectionLog	The operation that you want to perform. Set the value to QueryAttackDetectionLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
TimestampRangeFilter	RepeatList	No	["1594656000-1596729600"]	The time range to filter logs. You can enter multiple time ranges.

Parameter	Type	Required	Example	Description
RiskLevelFilter	RepeatList	No	[1, 2]	The risk level to filter rules. You can enter multiple values. Valid values: • **0**: no risks • **1**: low • **2**: medium • **3**: high
AttackTypeFilter	RepeatList	No	[1, 2, 3]	The attack type to filter rules. You can enter multiple values. Valid values: **-1** (non-web attacks), **0** (SQL injection attacks), **1** (XSS attacks), **2** (CSRF attacks), **3** (SSRF attacks), **4** (denial of service attacks), **5** (backdoors), **6** (deserialization attacks), **7** (code executions), **8** (code injection attacks), **9** (command injection attacks), **10** (file uploads), **11** (file inclusions), **12** (redirection attacks), **13** (improper authorization), **14** (information leaks), **15** (unauthorized access), **16** (insecure configurations), **17** (XXE attacks), **18** (Xpath injection attacks), **19** (LDAP injection attacks), **20** (path traversal attacks), **21** (scanners), **22** (horizontal authorization bypass), **23** (vertical authorization bypass), **24** (file modifications), **25** (file reads), **26** (file deletions), **27** (logical errors), **28** (CRLF injection attacks), **29** (template injection attacks), **30** (click hijacking attacks), **31** (buffer overflows), **32** (integer overflows), **33** (format string attacks), **34** (race condition attacks), **61** (timeout errors), and **62** (unknown attacks).
ActionFilter	RepeatList	No	[1, 2]	The action to filter logs. You can enter multiple actions. Valid values: **1**, **0**, and **2**. The value 1 indicates block, the value 0 indicates allow, and the value 2 indicates that all attack detection logs are returned.

Parameter	Type	Required	Example	Description
ProtocolFilter	RepeatList	No	[0, 1]	The protocol to filter logs. You can enter multiple protocols. Valid values: • **0**: HTTP • **1**: HTTPS
				The country or region to filter logs. You can enter multiple countries or regions. Valid values: CN (China), AD (Andorra), AE (United Arab Emirates), AF (Afghanistan), AG (Antigua and Barbuda), AI (Anguilla), AL (Albania), AM (Armenia), AO (Angola), AQ (Antarctica), AR (Argentina), AS (American Samoa), AT (Austria), AU (Australia), AW (Aruba), AX (Åland Islands), AZ (Azerbaijan), BA (Bosnia and Herzegovina), BB (Barbados), BD (Bangladesh), BE (Belgium), BF (Burkina Faso), BG (Bulgaria), BH (Bahrain), BI (Burundi), BJ (Benin), BL (Saint Barthelemy), BM (Bermuda), BN (Brunei), BO (Bolivia), BQ (Caribbean Netherlands), BR (Brazil), BS (The Bahamas), BT (Bhutan), BV (Bouvet Island), BW (Botswana), BY (Belarus), BZ (Belize), CA (Canada), CC (Cocos (Keeling) Islands), CD (Democratic Republic of the Congo), CF (Central African Republic), CG (Republic of the Congo), CH (Switzerland), CI (Côte d'Ivoire), CK (Cook Islands), CL (Chile), CM (Cameroon), CO (Colombia), CR (Costa Rica), CU (Cuba), CV (Cabo Verde), CW (Curacao), CX (Christmas Island), CY (Cyprus), CZ (Czech Republic), DE (Germany), DJ (Djibouti), DK (Denmark), DM (Dominica), DO (Dominican Republic), DZ (Algeria), EC (Ecuador), EE (Estonia), EG (Egypt), EH (Sahrawi Arab Democratic Republic), ER (Eritrea), ES (Spain), ET (Ethiopia), FI (Finland), FJ (Fiji), FK (Falkland Islands), FM (Federated States of Micronesia), FO (Faroe Islands), FR (France), GA (Gabon), GB (United Kingdom), GD (Grenada), GE (Georgia), GF (French Guiana), GG (Guernsey), GH (Ghana), GI (Gibraltar), GL (Greenland), GM (The Gambia), GN (Guinea), GP (Guadeloupe), GQ (Equatorial Guinea),

Parameter	Type	Required	Example	Description
CountryFilter	RepeatList	No	["GB, "US"]	GR (Greece), GS (South Georgia and the South Sandwich Islands), GT (Guatemala), GU (Guam), GW (Guinea-Bissau), GY (Guyana), HK (Hong Kong (China)), HM (Heard Island and McDonald Islands), HN (Honduras), HR (Croatia), HT (Haiti), HU (Hungary), ID (Indonesia), IE (Ireland), IL (Israel), IM (Isle of Man), IN (India), IO (British Indian Ocean Territory), IQ (Iraq), IR (Iran), IS (Iceland), IT (Italy), JE (Jersey), JM (Jamaica), JO (Jordan), JP (Japan), KE (Kenya), KG (Kyrgyzstan), KH (Kampuchea), KI (Kiribati), KM (Comoros), KN (Saint Kitts and Nevis), KP (North Korea), KR (South Korea), KW (Kuwait), KY (Cayman Islands), KZ (Kazakhstan), LA (Laos), LB (Lebanon), LC (Saint Lucia), LI (Liechtenstein), LK (Sri Lanka), LR (Liberia), LS (Lesotho), LT (Lithuania), LU (Luxembourg), LV (Latvia), LY (Libya), MA (Morocco), MC (Monaco), MD (Moldova), ME (Montenegro), MF (Saint Martin), MG (Madagascar), MH (Marshall Islands), MK (Macedonia), ML (Mali), MM (Myanmar), MN (Mongolia), MP (Northern Mariana Islands), MQ (Martinique), MR (Mauritania), MS (Montserrat), MT (Malta), MU (Mauritius), MV (Maldives), MW (Malawi), MX (Mexico), MY (Malaysia), MZ (Mozambique), NA (Namibia), NC (New Caledonia), NE (Niger), NF (Norfolk Island), NG (Nigeria), NI (Nicaragua), NL (Netherlands), NO (Norway), NP (Nepal), NR (Nauru), NU (Niue), NZ (New Zealand), OM (Oman), PA (Panama), PE (Peru), PF (French Polynesia), PG (Papua New Guinea), PH (Philippines), PK (Pakistan), PL (Poland), PM (Saint Pierre and Miquelon), PN (Pitcairn Islands), PR (Puerto Rico), PS (Palestine), PT (Portugal), PW (Palau), PY (Paraguay), QA (Qatar), RE (Reunion), RO (Romania), RS (Serbia), RU (Russia), RW (Rwanda), SA (Saudi Arabia), SB (Solomon Islands), SC (Seychelles), SD (Sudan), SE (Sweden), SG (Singapore), SH (Saint Helena), SI (Slovenia), SJ (Svalbard and Jan Mayen Islands), SK (Slovakia), SL (Sierra Leone), SM (San Marino), SN (Senegal), SO (Somalia), SR (Suriname), SS (South Sudan), ST (Sao

Parameter	Type	Required	Example	Description
				Tome and Principe), SV (El Salvador), SX (Sint Maarten), SY (Syria), SZ (Eswatini), TC (Turks and Caicos Islands), TD (Chad), TF (French Southern and Antarctic Lands), TG (Togo), TH (Thailand), TJ (Tajikistan), TK (Tokelau), TL (East Timor), TM (Turkmenistan), TN (Tunisia), TO (Tonga), TR (Turkey), TT (Trinidad and Tobago), TV (Tuvalu), TZ (Tanzania), UA (Ukraine), UG (Uganda), UM (United States Minor Outlying Islands), US (United States), UY (Uruguay), UZ (Uzbekistan), VA (Vatican City), VC (Saint Vincent and the Grenadines), VE (Venezuela), VG (British Virgin Islands), VI (United States Virgin Islands), VN (Vietnam), VU (Vanuatu), WF (Wallis and Futuna Islands), WS (Samoa), YE (Yemen), YT (Mayotte), ZA (South Africa), ZM (Zambia), and ZW (Zimbabwe).
EventIdFilter	RepeatList	No	["2a0ca6e9-a33d-4164-8a8d-3b0e91130069"]	The event ID to filter logs. You can enter multiple IDs.
SourceIpFilter	RepeatList	No	["192.168.XX.XX"]	The source IP address to filter logs. You can enter multiple source IP addresses.
HostFilter	RepeatList	No	["www.aliyun.com"]	The attacked domain name to filter logs. You can enter multiple domain names.
UrlPathFilter	RepeatList	No	["/"]	The URL path to filter logs. You can enter multiple URL paths.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
		{"items": [{"attack_type": "SQL injection", "risk_level": "High risk", "action": {"value": 1, "translation": "Block"}, "protocol":	

Parameter	Type	Example	Description
Result	String	"http", "country": "United States", "province": "", "dest_port": 80, "src_ip": "1.2.XX.XX", "url_path": "/", "host": "www.baidu.com", "timestamp": 1594610215, "id": "976ada8c-7561-48be-8d63-2d668defcbad", "event_id": "7f7ae14bada0490bb257547f05901ec7", "rule_id": "m_sqli", "detector": "a36c01009.cloud.c01.amtest11", "proxy_name": "a36c01009.cloud.c01.amtest11", "src_port": 34109, "dest_ip": "43.17.XX.XX", "req_header_raw": ""HEAD /? id=1 or b=2 HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: /\r\nHost: www.baidu.com\r\nX-Forwarded-For: 1.2.XX.XX\r\n\r\n"", "req_body": """, "resp_header_raw": """, "resp_body": """, "payload": ""1 or b=2"", "session": "", "location": "urlpath", "decode_path": "", "ali_uid": "1376988933618853", "aliyun_extra": "{"resource_port_mapping":{}}", "real_dest_port": 80, "vpc_id": "", "vpc_name": "yd_vpc", "extra": "{}", "module": "SQL injection detection	The returned result of the request.

Parameter	Type	Example	Description
		module", "reason": "SQL injection detected", "website": "http://www.baidu.com/"}], "total": "101"}	

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAttackDetectionLog
&RegionId=cn-hangzhou
&PageSize=20
&PageNumber=1
&TimestampRangeFilter.1=1594656000-1596729600
&RiskLevelFilter.1=1
&AttackTypeFilter.1=1
&ActionFilter.1=1
&ProtocolFilter.1=0
&CountryFilter.1=["GB, "US"]
&EventIdFilter.1=2a0ca6e9-a33d-4164-8a8d-3b0e91130069
&SourceIpFilter.1=192.168.100.200
&HostFilter.1=www.aliyun.com
&UrlPathFilter.1=/
```

Sample success responses

`XML` format

```
<QueryAttackDetectionLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"attack_type": "SQL injection", "risk_level": "High risk", "action"
: {"value": 1, "translation": "Block"}, "protocol": "http", "country": "United States", "pr
ovince": "", "dest_port": 80, "src_ip": "1.2.XX.XX", "url_path": "/", "host": "www.baidu.co
m", "timestamp": 1594610215, "id": "976ada8c-7561-48be-8d63-2d668defcbad", "event_id": "7f7
ae14bada0490bb257547f05901ec7", "rule_id": "m_sqli", "detector": "a36c01009.cloud.c01.amtes
t11", "proxy_name": "a36c01009.cloud.c01.amtest11", "src_port": 34109, "dest_ip": "43.17.XX
.XX", "req_header_raw": ""HEAD /? id=1 or b=2 HTTP/1.1\\r\\nUser-Agent: curl/7.29.0\\r\\nAc
cept: */*\\r\\nHost: www.baidu.com\\r\\nX-Forwarded-For: 1.2.XX.XX\\r\\n\\r\\n"", "req_body
": """, "resp_header_raw": """, "resp_body": """, "payload": ""1 or b=2"", "session": ""
, "location": "urlpath", "decode_path": "", "ali_uid": "1376988933618853", "aliyun_extra":
"{"resource_port_mapping":{}}", "real_dest_port": 80, "vpc_id": "", "vpc_name": "yd_vpc", "
extra": "{}", "module": "SQL injection detection module", "reason": "SQL injection detected
", "website": "http://www.baidu.com/"}], "total": "101"}</Result>
</QueryAttackDetectionLogResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"attack_type\": \"SQL injection\", \"risk_level\": \"High risk\"
, \"action\": {\"value\": 1, \"translation\": \"Block\"}, \"protocol\": \"http\", \"country
\": \"United States\", \"province\": \"\", \"dest_port\": 80, \"src_ip\": \"1.2.XX.XX\", \"
url_path\": \"/\", \"host\": \"www.baidu.com\", \"timestamp\": 1594610215, \"id\": \"976ada
8c-7561-48be-8d63-2d668defcbad\", \"event_id\": \"7f7ae14bada0490bb257547f05901ec7\", \"rul
e_id\": \"m_sqli\", \"detector\": \"a36c01009.cloud.c01.amtest11\", \"proxy_name\": \"a36c0
1009.cloud.c01.amtest11\", \"src_port\": 34109, \"dest_ip\": \"43.17.XX.XX\", \"req_header_
raw\": \"\"HEAD /? id=1 or b=2 HTTP/1.1\\\\r\\\\nUser-Agent: curl/7.29.0\\\\r\\\\nAccept: *
/*\\\\r\\\\nHost: www.baidu.com\\\\r\\\\nX-Forwarded-For: 1.2.XX.XX\\\\r\\\\n\\\\r\\\\n\"\"
, \"req_body\": \"\"\"\", \"resp_header_raw\": \"\"\"\", \"resp_body\": \"\"\"\", \"payload
\": \"\"1 or b=2\"\", \"session\": \"\", \"location\": \"urlpath\", \"decode_path\": \"\",
\"ali_uid\": \"1376988933618853\", \"aliyun_extra\": \"{\"resource_port_mapping\":{}}\", \"
real_dest_port\": 80, \"vpc_id\": \"\", \"vpc_name\": \"yd_vpc\", \"extra\": \"{}\", \"modu
le\": \"SQL injection detection module\", \"reason\": \"SQL injection detected\", \"website
\": \"http://www.baidu.com/\"}], \"total\": \"101\"}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.7.3. QueryAttackDetectionDetailLog

Queries the details of a specific attack detection log.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAttackDetectionDetailLog	The operation that you want to perform. Set the value to QueryAttackDetectionDetailLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
LogId	String	Yes	1e23f8d1-a9d2-4dd9-b7e2-424b9832183f	The ID of the attack detection log.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"items": [{"attack_type": "SQL injection", "risk_level": "High risk", "action": {"value": 1, "translation": "Block"}, "protocol": "http", "country": "United States", "province": "", "dest_port": 80, "src_ip": "1.2.XX.XX", "url_path": "/", "host": "www.baidu.com", "timestamp": 1594610215, "id": "976ada8c-7561-48be-8d63-2d668defcbad", "event_id": "7f7ae14bada0490bb257547f05901ec7", "rule_id": "m_sqli", "detector": "a36c01009.cloud.c01.amtest11", "proxy_name": "a36c01009.cloud.c01.amtest11", "src_port": 34109, "dest_ip": "43.17.XX.XX", "req_header_raw": ""HEAD /? id=1 or b=2 HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: /\r\nHost: www.baidu.com\r\nX-Forwarded-For: 1.2.XX.XX\r\n\r\n"", "req_body": """, "resp_header_raw": """, "resp_body": """, "payload": ""1 or b=2"", "session": "", "location": "urlpath", "decode_path": "", "ali_uid": "1376988933618853", "aliyun_extra": "{"resource_port_mapping":{}}", "real_dest_port": 80, "vpc_id": "", "vpc_name": "yd_vpc", "extra": "{}", "module": "SQL injection detection module", "reason": "SQL injection detected", "website": "http://www.baidu.com/"}]}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAttackDetectionDetailLog
&RegionId=cn-hangzhou
&LogId=1e23f8d1-a9d2-4dd9-b7e2-424b9832183f
```

Sample success responses

`XML` format

```
<QueryAttackDetectionDetailLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"attack_type": "SQL injection", "risk_level": "High risk", "action"
: {"value": 1, "translation": "Block"}, "protocol": "http", "country": "United States", "pr
ovince": "", "dest_port": 80, "src_ip": "1.2.XX.XX", "url_path": "/", "host": "www.baidu.co
m", "timestamp": 1594610215, "id": "976ada8c-7561-48be-8d63-2d668defcbad", "event_id": "7f7
ae14bada0490bb257547f05901ec7", "rule_id": "m_sqli", "detector": "a36c01009.cloud.c01.amtes
t11", "proxy_name": "a36c01009.cloud.c01.amtest11", "src_port": 34109, "dest_ip": "43.17.XX
.XX", "req_header_raw": ""HEAD /? id=1 or b=2 HTTP/1.1\\r\\nUser-Agent: curl/7.29.0\\r\\nAc
cept: */*\\r\\nHost: www.baidu.com\\r\\nX-Forwarded-For: 1.2.XX.XX\\r\\n\\r\\n"", "req_body
": """, "resp_header_raw": """, "resp_body": """, "payload": ""1 or b=2"", "session": ""
, "location": "urlpath", "decode_path": "", "ali_uid": "1376988933618853", "aliyun_extra":
"{"resource_port_mapping":{}}", "real_dest_port": 80, "vpc_id": "", "vpc_name": "yd_vpc", "
extra": "{}", "module": "SQL injection detection module", "reason": "SQL injection detected
", "website": "http://www.baidu.com/"}]}</Result>
</QueryAttackDetectionDetailLogResponse>
```

`JSON` format


```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"attack_type\": \"SQL injection\", \"risk_level\": \"High risk\"
, \"action\": {\"value\": 1, \"translation\": \"Block\"}, \"protocol\": \"http\", \"country
\": \"United States\", \"province\": \"\", \"dest_port\": 80, \"src_ip\": \"1.2.XX.XX\", \"
url_path\": \"/\", \"host\": \"www.baidu.com\", \"timestamp\": 1594610215, \"id\": \"976ada
8c-7561-48be-8d63-2d668defcbad\", \"event_id\": \"7f7ae14bada0490bb257547f05901ec7\", \"rul
e_id\": \"m_sqli\", \"detector\": \"a36c01009.cloud.c01.amtest11\", \"proxy_name\": \"a36c0
1009.cloud.c01.amtest11\", \"src_port\": 34109, \"dest_ip\": \"43.17.XX.XX\", \"req_header_
raw\": \"\"HEAD /? id=1 or b=2 HTTP/1.1\\\\r\\\\nUser-Agent: curl/7.29.0\\\\r\\\\nAccept: *
/*\\\\r\\\\nHost: www.baidu.com\\\\r\\\\nX-Forwarded-For: 1.2.XX.XX\\\\r\\\\n\\\\r\\\\n\"\"
, \"req_body\": \"\"\"\", \"resp_header_raw\": \"\"\"\", \"resp_body\": \"\"\"\", \"payload
\": \"\"1 or b=2\"\", \"session\": \"\", \"location\": \"urlpath\", \"decode_path\": \"\",
\"ali_uid\": \"1376988933618853\", \"aliyun_extra\": \"{\"resource_port_mapping\":{}}\", \"
real_dest_port\": 80, \"vpc_id\": \"\", \"vpc_name\": \"yd_vpc\", \"extra\": \"{}\", \"modu
le\": \"SQL injection detection module\", \"reason\": \"SQL injection detected\", \"website
\": \"http://www.baidu.com/\"}]}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.7.4. QueryAuditLog

Queries system operations logs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryAuditLog	The operation that you want to perform. Set the value to QueryAuditLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	20	The number of entries to return on each page. Default value: 10.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"items": [{"content": "An access control whitelist is created. Data: {'comment': '', 'target_type': 'Session', 'target_list': ['1313'], 'target_group_list': []}", "username": "1376988933618853", "id": "756897bd-a178-445b-a193-5b46c14fa44c", "ip": "10.17.XX.XX", "user_agent": "Apache-HttpClient/4.5.2 (Java/1.8.0_152)", "log_type": "Access control and management", "create_time": "1594653501"}], "total": "36"}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryAuditLog
&RegionId=cn-hangzhou
&PageSize=20
&PageNumber=1
```

Sample success responses

`XML` format

```
<QueryAuditLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"content": "An access control whitelist is created. Data: {'comment': '', 'target_type': 'Session', 'target_list': ['1313'], 'target_group_list': []}", "username": "1376988933618853", "id": "756897bd-a178-445b-a193-5b46c14fa44c", "ip": "10.17.XX.XX", "user_agent": "Apache-HttpClient/4.5.2 (Java/1.8.0_152)", "log_type": "Access control and management", "create_time": "1594653501"}], "total": "36"}</Result>
</QueryAuditLogResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"content\": \"An access control whitelist is created. Data: {'comment': '', 'target_type': 'Session', 'target_list': ['1313'], 'target_group_list': []}\", \"username\": \"1376988933618853\", \"id\": \"756897bd-a178-445b-a193-5b46c14fa44c\", \"ip\": \"10.17.XX.XX\", \"user_agent\": \"Apache-HttpClient/4.5.2 (Java/1.8.0_152)\", \"log_type\": \"Access control and management\", \"create_time\": \"1594653501\"}], \"total\": \"36\"}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7.5. QueryCCRuleExecutionLog

Queries the logs on the execution of HTTP flood protection rules.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryCCRuleExecutionLog	The operation that you want to perform. Set the value to QueryCCRuleExecutionLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
PageSize	Integer	No	20	The number of entries to return on each page. Default value: 10.
TimestampRangeFilter	RepeatList	No	["1594656000-1596729600"]	The time range to filter logs. You can enter multiple ranges. Unit: seconds.
CCRuleTemplateIdList	RepeatList	No	[1, 2]	The rule ID to filter logs. You can enter multiple IDs. You can call the DescribeCCRuleTemplate operation to query the IDs of HTTP flood protection rules.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"items": [{"acl_rule_id": "29", "acl_rule_template_id": "38", "acl_rule_template_version": "39", "timestamp": "1594610400", "count": "100", "acl_rule_target": "1.2.XX.XX", "acl_rule_template": {"name": "123", "match_method": {"target_type": "CIDR", "period": 5, "limit": 1, "scope": "URL", "policy": "www.baidu.com", "scheme": "http"}, "action": {"action": "forbid"}, "template_type": "auto", "dry_run": false, "status": "ok"}}], "total": 11}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryCCRuleExecutionLog
&RegionId=cn-hangzhou
&PageSize=20
&PageNumber=1
&TimestampRangeFilter.1=1594656000-1596729600
&CCRuleTemplateIdList.1=1
```

Sample success responses

`XML` format

```
<QueryCCRuleExecutionLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"acl_rule_id": "29", "acl_rule_template_id": "38", "acl_rule_template_version": "39", "timestamp": "1594610400", "count": "100", "acl_rule_target": "1.2.XX.XX", "acl_rule_template": {"name": "123", "match_method": {"target_type": "CIDR", "period": 5, "limit": 1, "scope": "URL", "policy": "www.baidu.com", "scheme": "http"}, "action": {"action": "forbid"}, "template_type": "auto", "dry_run": false, "status": "ok"}}], "total": 11}
</Result>
</QueryCCRuleExecutionLogResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"acl_rule_id\": \"29\", \"acl_rule_template_id\": \"38\", \"acl_rule_template_version\": \"39\", \"timestamp\": \"1594610400\", \"count\": \"100\", \"acl_rule_target\": \"1.2.XX.XX\", \"acl_rule_template\": {\"name\": \"123\", \"match_method\": {\"target_type\": \"CIDR\", \"period\": 5, \"limit\": 1, \"scope\": \"URL\", \"policy\": \"www.baidu.com\", \"scheme\": \"http\"}, \"action\": {\"action\": \"forbid\"}, \"template_type\": \"auto\", \"dry_run\": false, \"status\": \"ok\"}}], \"total\": 11}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7.6. QueryFullAccessLog

Queries full access logs.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryFullAccessLog	The operation that you want to perform. Set the value to QueryFullAccessLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.
TimestampRangeFilter	RepeatList	No	["1594656000-1596729600"]	The time range to filter logs. You can enter multiple time ranges.

Parameter	Type	Required	Example	Description
SourceIpFilter	RepeatList	No	["192.168.XX.XX"]	The source IP address to filter logs. You can enter multiple source IP addresses.
DestinationIp	RepeatList	No	["10.10.XX.XX"]	The destination IP address to filter logs. You can enter multiple destination IP addresses.
MethodFilter	RepeatList	No	["POST"]	The request method to filter logs. You can enter multiple methods.
SourcePortFilter	RepeatList	No	[11013, 55555]	The source port to filter logs. You can enter multiple source ports.
ResponseCode	RepeatList	No	[302, 404]	The response code to filter logs. You can enter multiple codes.
DestinationPortFilter	RepeatList	No	[80, 443]	The destination port to filter logs. You can enter multiple destination ports.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
		{"items": [{"id": "a03511f0-b325-4674-8f50-80feb5de2023", "ali_uid": "1376988933618853", "timestamp": 1594698077, "dest_ip": "43.17.XX.XX", "dest_port": 10003, "real_dest_port": 80, "src_ip": "10.17.XX.XX", "src_port": 37078, "req_header_raw": ""GET / HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: /\r\nhost: www.wafcloud.com\r\n\r\n"", "method": "GET",	

Parameter	Type	Example	Description
Result	String	"req_body": """, "resp_header_raw": ""HTTP/1.1 200 OK\r\nServer: nginx/1.10.2\r\nDate: Tue, 14 Jul 2020 03:40:35 GMT\r\nContent-Type: text/html\r\nContent-Length: 3700\r\nLast-Modified: Tue, 28 Mar 2017 07:33:40 GMT\r\nConnection: keep-alive\r\nETag: "58da11d4-e74"\r\nAccept-Ranges: bytes\r\n\r\n", "resp_code": 200, "payload": """, "url": "/", "content_type": "text/html", "event_id": "", "session": "null", "proxy_name": "a36c01009.cloud.c01.amtest11", "website": "www.wafcloud.com", "host": "www.wafcloud.com", "vpc": "vpc-9qb3r79gohas1khsr2x7e", "vpc_name": "-"}], "total": "1"}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryFullAccessLog
&RegionId=cn-hangzhou
&PageSize=20
&PageNumber=1
&TimestampRangeFilter.1=1594656000-1596729600
&SourceIpFilter.1=192.168.XX.XX
&DestinationIp.1=10.10.XX.XX
&MethodFilter.1=POST
&ResponseCode.1=302
&SourcePortFilter.1=11013
&DestinationPortFilter.1=80
&HostFilter.1=192.168.XX.XX
&PathFilter.1=/index.html
```

Sample success responses

`XML` format

```
<QueryFullAccessLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"id": "a03511f0-b325-4674-8f50-80feb5de2023", "ali_uid": "137698893
3618853", "timestamp": 1594698077, "dest_ip": "43.17.XX.XX", "dest_port": 10003, "real_dest
_port": 80, "src_ip": "10.17.XX.XX", "src_port": 37078, "req_header_raw": ""GET / HTTP/1.1\
r\nUser-Agent: curl/7.29.0\r\nAccept: */*\r\nhost: www.wafcloud.com\r\n\r\n"", "method": "G
ET", "req_body": """, "resp_header_raw": ""HTTP/1.1 200 OK\r\nServer: nginx/1.10.2\r\nDate
: Tue, 14 Jul 2020 03:40:35 GMT\r\nContent-Type: text/html\r\nContent-Length: 3700\r\nLast-
Modified: Tue, 28 Mar 2017 07:33:40 GMT\r\nConnection: keep-alive\r\nETag: \"58da11d4-e74\"
\r\nAccept-Ranges: bytes\r\n\r\n"", "resp_code": 200, "payload": """, "url": "/", "content
_type": "text/html", "event_id": "", "session": "null", "proxy_name": "a36c01009.cloud.c01.
amtest11", "website": "www.wafcloud.com", "host": "www.wafcloud.com", "vpc": "vpc-9qb3r79go
has1khsr2x7e", "vpc_name": "-"}], "total": "1"}</Result>
</QueryFullAccessLogResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"id\": \"a03511f0-b325-4674-8f50-80feb5de2023\", \"ali_uid\": \"
1376988933618853\", \"timestamp\": 1594698077, \"dest_ip\": \"43.17.XX.XX\", \"dest_port\":
10003, \"real_dest_port\": 80, \"src_ip\": \"10.17.XX.XX\", \"src_port\": 37078, \"req_head
er_raw\": \"\"GET / HTTP/1.1\\r\\nUser-Agent: curl/7.29.0\\r\\nAccept: */*\\r\\nhost: www.w
afcloud.com\\r\\n\\r\\n\"\", \"method\": \"GET\", \"req_body\": \"\"\"\", \"resp_header_raw
\": \"\"HTTP/1.1 200 OK\\r\\nServer: nginx/1.10.2\\r\\nDate: Tue, 14 Jul 2020 03:40:35 GMT\
\r\\nContent-Type: text/html\\r\\nContent-Length: 3700\\r\\nLast-Modified: Tue, 28 Mar 2017
07:33:40 GMT\\r\\nConnection: keep-alive\\r\\nETag: \\\"58da11d4-e74\\\"\\r\\nAccept-Ranges
: bytes\\r\\n\\r\\n\"\", \"resp_code\": 200, \"payload\": \"\"\"\", \"url\": \"/\", \"conte
nt_type\": \"text/html\", \"event_id\": \"\", \"session\": \"null\", \"proxy_name\": \"a36c
01009.cloud.c01.amtest11\", \"website\": \"www.wafcloud.com\", \"host\": \"www.wafcloud.com
\", \"vpc\": \"vpc-9qb3r79gohas1khsr2x7e\", \"vpc_name\": \"-\"}], \"total\": \"1\"}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7.7. QueryFullAccessDetailLog

Queries the details of a specific full access log.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryFullAccessDetailLog	The operation that you want to perform. Set the value to QueryFullAccessDetailLog.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
LogId	String	Yes	1e23f8d1-a9d2-4dd9-b7e2-424b9832183f	The ID of the log.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"items": [{"id": "a03511f0-b325-4674-8f50-80feb5de2023", "ali_uid": "1376988933618853", "timestamp": 1594698077, "dest_ip": "43.17.XX.XX", "dest_port": 10003, "real_dest_port": 80, "src_ip": "10.17.XX.XX", "src_port": 37078, "req_header_raw": ""GET / HTTP/1.1\r\nUser-Agent: curl/7.29.0\r\nAccept: /\r\nhost: www.wafcloud.com\r\n\r\n"", "method": "GET", "req_body": """, "resp_header_raw": ""HTTP/1.1 200 OK\r\nServer: nginx/1.10.2\r\nDate: Tue, 14 Jul 2020 03:40:35 GMT\r\nContent-Type: text/html\r\nContent-Length: 3700\r\nLast-Modified: Tue, 28 Mar 2017 07:33:40 GMT\r\nConnection: keep-alive\r\nETag: "58da11d4-e74"\r\nAccept-Ranges: bytes\r\n\r\n"", "resp_code": 200, "payload": """, "url": "/", "content_type": "text/html", "event_id": "", "session": "null", "proxy_name": "a36c01009.cloud.c01.amtest11", "website": "www.wafcloud.com", "host": "www.wafcloud.com", "vpc": "vpc-9qb3r79gohas1khsr2x7e", "vpc_name": "-"}]}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryFullAccessDetailLog
&RegionId=cn-hangzhou
&LogId=1e23f8d1-a9d2-4dd9-b7e2-424b9832183f
```

Sample success responses

`XML` format

```
<QueryFullAccessDetailLogResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"items": [{"id": "a03511f0-b325-4674-8f50-80feb5de2023", "ali_uid": "137698893
3618853", "timestamp": 1594698077, "dest_ip": "43.17.XX.XX", "dest_port": 10003, "real_dest
_port": 80, "src_ip": "10.17.XX.XX", "src_port": 37078, "req_header_raw": ""GET / HTTP/1.1\
r\nUser-Agent: curl/7.29.0\r\nAccept: */*\r\nhost: www.wafcloud.com\r\n\r\n"", "method": "G
ET", "req_body": """", "resp_header_raw": ""HTTP/1.1 200 OK\r\nServer: nginx/1.10.2\r\nDate
: Tue, 14 Jul 2020 03:40:35 GMT\r\nContent-Type: text/html\r\nContent-Length: 3700\r\nLast-
Modified: Tue, 28 Mar 2017 07:33:40 GMT\r\nConnection: keep-alive\r\nETag: \"58da11d4-e74\"
\r\nAccept-Ranges: bytes\r\n\r\n"", "resp_code": 200, "payload": """", "url": "/", "content
_type": "text/html", "event_id": "", "session": "null", "proxy_name": "a36c01009.cloud.c01.
amtest11", "website": "www.wafcloud.com", "host": "www.wafcloud.com", "vpc": "vpc-9qb3r79go
has1khsr2x7e", "vpc_name": "-"}]}</Result>
</QueryFullAccessDetailLogResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"items\": [{\"id\": \"a03511f0-b325-4674-8f50-80feb5de2023\", \"ali_uid\": \"
1376988933618853\", \"timestamp\": 1594698077, \"dest_ip\": \"43.17.XX.XX\", \"dest_port\":
10003, \"real_dest_port\": 80, \"src_ip\": \"10.17.XX.XX\", \"src_port\": 37078, \"req_head
er_raw\": \"\"GET / HTTP/1.1\\r\\nUser-Agent: curl/7.29.0\\r\\nAccept: */*\\r\\nhost: www.w
afcloud.com\\r\\n\\r\\n\"\", \"method\": \"GET\", \"req_body\": \"\"\"\", \"resp_header_raw
\": \"\"HTTP/1.1 200 OK\\r\\nServer: nginx/1.10.2\\r\\nDate: Tue, 14 Jul 2020 03:40:35 GMT\
\r\\nContent-Type: text/html\\r\\nContent-Length: 3700\\r\\nLast-Modified: Tue, 28 Mar 2017
07:33:40 GMT\\r\\nConnection: keep-alive\\r\\nETag: \\\"58da11d4-e74\\\"\\r\\nAccept-Ranges
: bytes\\r\\n\\r\\n\"\", \"resp_code\": 200, \"payload\": \"\"\"\", \"url\": \"/\", \"conte
nt_type\": \"text/html\", \"event_id\": \"\", \"session\": \"null\", \"proxy_name\": \"a36c
01009.cloud.c01.amtest11\", \"website\": \"www.wafcloud.com\", \"host\": \"www.wafcloud.com
\", \"vpc\": \"vpc-9qb3r79gohas1khsr2x7e\", \"vpc_name\": \"-\"}]}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.7.8. QueryPerformanceStatistics

Queries the historical performance data of a specific node.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	QueryPerformanceStatistics	The operation that you want to perform. Set the value to QueryPerformanceStatistics.

Parameter	Type	Required	Example	Description
RegionId	String	Yes	cn-hangzhou	The ID of the region.
NodeName	String	Yes	a36c01009.cloud.c01.amtest11	The name of the node.
TimestampRangeFilter	RepeatList		["1594656000-1596729600"]	The time range to filter historical performance data. You can enter multiple time ranges.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	[{"id": 2005654, "name": "c43b02111.cloud.b03.amtest21", "timestamp": "1594697170", "cpu_usage": 1.5670533277966774, "memory_usage": 8.946810185810278, "disk_usage": 5.475940507296313, "network_read": 26010.129032258064, "network_write": 25739.064516129034, "qps": 0.0, "cps": 10.6, "extra": {}}, {"id": 2005652, "name": "c43b02111.cloud.b03.amtest21", "timestamp": "1594697165", "cpu_usage": 1.3590924225742251, "memory_usage": 8.943323969418117, "disk_usage": 5.475936863788965, "network_read": 23102.645161290322, "network_write": 22265.774193548386, "qps": 0.0, "cps": 9.2, "extra": {}}]	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=QueryPerformanceStatistics
&RegionId=cn-hangzhou
&NodeName=a36c01009.cloud.c01.amtest11
&TimestampRangeFilter.1=1594656000-1596729600
```

Sample success responses

`XML` format

```
<QueryPerformanceStatisticsResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"id": 2005654, "name": "c43b02111.cloud.b03.amtest21", "timestamp": "15946971
70", "cpu_usage": 1.5670533277966774, "memory_usage": 8.946810185810278, "disk_usage": 5.47
5940507296313, "network_read": 26010.129032258064, "network_write": 25739.064516129034, "qp
s": 0.0, "cps": 10.6, "extra": {}}, {"id": 2005652, "name": "c43b02111.cloud.b03.amtest21",
"timestamp": "1594697165", "cpu_usage": 1.3590924225742251, "memory_usage": 8.9433239694181
17, "disk_usage": 5.475936863788965, "network_read": 23102.645161290322, "network_write": 2
2265.774193548386, "qps": 0.0, "cps": 9.2, "extra": {}}]</Result>
</QueryPerformanceStatisticsResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"id\": 2005654, \"name\": \"c43b02111.cloud.b03.amtest21\", \"timestamp\": \
"1594697170\", \"cpu_usage\": 1.5670533277966774, \"memory_usage\": 8.946810185810278, \"di
sk_usage\": 5.475940507296313, \"network_read\": 26010.129032258064, \"network_write\": 257
39.064516129034, \"qps\": 0.0, \"cps\": 10.6, \"extra\": {}}, {\"id\": 2005652, \"name\": \
"c43b02111.cloud.b03.amtest21\", \"timestamp\": \"1594697165\", \"cpu_usage\": 1.3590924225
742251, \"memory_usage\": 8.943323969418117, \"disk_usage\": 5.475936863788965, \"network_r
ead\": 23102.645161290322, \"network_write\": 22265.774193548386, \"qps\": 0.0, \"cps\": 9.
2, \"extra\": {}}]"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.8. SSL certificate management

19.1.4.8.1. DescribeSSLCert

Queries the information about SSL certificates.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeSSLCert	The operation that you want to perform. Set the value to DescribeSSLCert.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the SSL certificate.
PageSize	Integer	No	10	The number of entries to return on each page. Default value: 10.

Parameter	Type	Required	Example	Description
PageNumber	Integer	No	1	The number of the page to return. Default value: 1.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	[{"id": 1, "websites": [], "create_time": "1589445455", "name": "test_cert_1", "signature": "329b059f298419c002fc69f1ee9a3df1", "info": {"serial": "0xb79b1ba15f4fb061", "issuer": "Aliyun", "not_valid_before": 1567468800, "not_valid_after": 1882828800, "domains": []}}]	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeSSLCert
&RegionId=cn-hangzhou
&Id=1
&PageSize=10
&PageNumber=1
```

Sample success responses

`XML` format

```
<DescribeSSLCertResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"id": 1, "websites": [], "create_time": "1589445455", "name": "test_cert_1",
"signature": "329b059f298419c002fc69f1ee9a3df1", "info": {"serial": "0xb79b1ba15f4fb061", "
issuer": "Aliyun", "not_valid_before": 1567468800, "not_valid_after": 1882828800, "domains"
: []}}]</Result>
</DescribeSSLCertResponse>
```

`JSON` format


```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"id\": 1, \"websites\": [], \"create_time\": \"1589445455\", \"name\": \"test_cert_1\", \"signature\": \"329b059f298419c002fc69f1ee9a3df1\", \"info\": {\"serial\": \"0xb79b1ba15f4fb061\", \"issuer\": \"Aliyun\", \"not_valid_before\": 1567468800, \"not_valid_after\": 1882828800, \"domains\": []}}]"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.8.2. UploadSSLCert

Uploads an SSL certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	UploadSSLCert	The operation that you want to perform. Set the value to UploadSSLCert.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
CertName	String	No	taobao_cert	The name of the SSL certificate.
CertFile	Json	Yes	{"name":"","content":"bEtrYmdrVFVSb3plY1dMa01BVmZrekhGdGxw****"}	The Base64-encoded CA certificate file. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **name**: Leave this field unspecified. • **content**: the Base64-encoded CA certificate file.
KeyFile	Json	No	{"name":"","content":"eElzcEZEaElzaXlqVFBGU1B0ZG9qdm1iSEV1****"}	The Base64-encoded private key file. This parameter is a string consisting of JSON structs. A JSON struct includes the following fields: • **name**: Leave this field unspecified. • **content**: the Base64-encoded private key file.
CertPassword	String	No	jgXzOoigHGWCLxE	The password of the SSL certificate.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"id": 7, "websites": [], "create_time": "1589771325", "name": "test-cert-1", "signature": "ec23ec040764d0cc078879582a375c2c", "info": {"serial": "0xdd45e828dca4b8c9", "issuer": null, "not_valid_before": 1560816000, "not_valid_after": 1592352000, "domains": []}}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=UploadSSLCert
&RegionId=cn-hangzhou
&CertName=taobao_cert
&CertFile={"name":"","content":"bEtrYmdrVFVSb3plY1dMa01BVmZrekhGdGxweVpl"}
&KeyFile={"name":"","content":"eElzcEZEaElzaXlqVFBGU1B0ZG9qdm1iSEV1YW16"}
&CertPassword=jgXzOoigHGWCLxE
```

Sample success responses

`XML` format

```
<UploadSSLCertResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"id": 7, "websites": [], "create_time": "1589771325", "name": "test-cert-1", "
signature": "ec23ec040764d0cc078879582a375c2c", "info": {"serial": "0xdd45e828dca4b8c9", "i
ssuer": null, "not_valid_before": 1560816000, "not_valid_after": 1592352000, "domains": []}
}</Result>
</UploadSSLCertResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"id\": 7, \"websites\": [], \"create_time\": \"1589771325\", \"name\": \"test-cert-1\", \"signature\": \"ec23ec040764d0cc078879582a375c2c\", \"info\": {\"serial\": \"0xdd45e828dca4b8c9\", \"issuer\": null, \"not_valid_before\": 1560816000, \"not_valid_after\": 1592352000, \"domains\": []}}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.8.3. EditSSLCert

Modifies the name of a specific SSL certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	EditSSLCert	The operation that you want to perform. Set the value to EditSSLCert.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Id	Integer	No	1	The ID of the SSL certificate. You can call the DescribeSSLCert operation to query the ID of the SSL certificate.
CertName	String	No	aliyun_cert	The name of the SSL certificate. You can call the DescribeSSLCert operation to query the name of the SSL certificate.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.

Parameter	Type	Example	Description
Result	String	{"id": 1, "websites": [], "create_time": "1589771325", "name": "test-cert-1", "signature": "ec23ec040764d0cc078879582a375c2c", "info": {"serial": "0xdd45e828dca4b8c9", "issuer": null, "not_valid_before": 1560816000, "not_valid_after": 1592352000, "domains": []}}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=EditSSLCert
&RegionId=cn-hangzhou
&Id=1
&CertName=aliyun_cert
```

Sample success responses

`XML` format

```
<EditSSLCertResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"id": 7, "websites": [], "create_time": "1589771325", "name": "test-cert-1", "
signature": "ec23ec040764d0cc078879582a375c2c", "info": {"serial": "0xdd45e828dca4b8c9", "i
ssuer": null, "not_valid_before": 1560816000, "not_valid_after": 1592352000, "domains": []}
}</Result>
</EditSSLCertResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"id\": 7, \"websites\": [], \"create_time\": \"1589771325\", \"name\": \"test
-cert-1\", \"signature\": \"ec23ec040764d0cc078879582a375c2c\", \"info\": {\"serial\": \"0x
dd45e828dca4b8c9\", \"issuer\": null, \"not_valid_before\": 1560816000, \"not_valid_after\"
: 1592352000, \"domains\": []}}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.8.4. DeleteSSLCert

Deletes a specific SSL certificate.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DeleteSSLCert	The operation that you want to perform. Set the value to DeleteSSLCert.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
IdList	RepeatList	Yes	[1, 2]	The ID of the SSL certificate. You can enter multiple IDs. You can call the DescribeSSLCert operation to query the IDs of SSL certificates.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String		The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DeleteSSLCert
&RegionId=cn-hangzhou
&IdList.1=1
```

Sample success responses

`XML` format

```
<DeleteSSLCertResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</DeleteSSLCertResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.9. System information

19.1.4.9.1. DescribeMetrics

Queries the monitoring metrics of physical WAF nodes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeMetrics	The operation that you want to perform. Set the value to DescribeMetrics.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"nodes": [{"id": "a36c01009.cloud.c01.amtest11", "qps": 0, "disk_watermark": 0.05619211156645502, "throughput_read": 368475, "throughput_write": 368434, "connections": 1, "delta_connections": 0}], "website_count": 0, "domain_count": 0, "is_healthy": true}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeMetrics
&RegionId=cn-hangzhou
```

Sample success responses

`XML` format

```
<DescribeMetricsResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"nodes": [{"id": "a36c01009.cloud.c01.amtest11", "qps": 0, "disk_watermark": 0
.05619211156645502, "throughput_read": 368475, "throughput_write": 368434, "connections": 1
, "delta_connections": 0}], "website_count": 0, "domain_count": 0, "is_healthy": true}</Res
ult>
</DescribeMetricsResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"nodes\": [{\"id\": \"a36c01009.cloud.c01.amtest11\", \"qps\": 0, \"disk_wate
rmark\": 0.05619211156645502, \"throughput_read\": 368475, \"throughput_write\": 368434, \"
connections\": 1, \"delta_connections\": 0}], \"website_count\": 0, \"domain_count\": 0, \"
is_healthy\": true}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.9.2. DescribeNodeStatus

Queries the status information about physical WAF nodes.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeNodeStatus	The operation that you want to perform. Set the value to DescribeNodeStatus.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
		[{"ha": {"services": [{"estate": "master", "healthy": true, "mstate": "idle", "name": "redis", "url": ""}]}, "id": "c43b02111.cloud.b03.amtest21", "node": {"cpu": 0.015010513044737767, "detector": {"conn_client": 14, "conn_client_close": 0, "conn_client_estab": 0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 7.2e-05, "detector_version": "4.1.4-5b5eb8e3", "fusion_stat": {"req": {"average_length": 0, "average_time": 0, "count": 0, "max_length": 0, "max_time": 0, "min_length": 0, "min_time": 0, "sd_length": 0, "sd_time": 0, "top10_length": 0, "top10_time": 0, "top50_length": 0, "top50_time": 0, "top90_length": 0, "top90_time": 0, "top99_length": 0, "top99_time": 0}, "rsp": {"average_length": 0, "average_time": 0, "count": 0, "max_length": 0, "max_time": 0, "min_length": 0, "min_time": 0, "sd_length": 0, "sd_time": 0, "top10_length": 0, "top10_time": 0, "top50_length": 0, "top50_time": 0, "top90_length": 0, "top90_time": 0, "top99_length": 0, "top99_time": 0}}, "ioread": 12782, "iowrite": 3416, "mem": 0.004292, "node": "c43b02111.cloud.b03.amtest21", "policy_version": {"cc_config_version": "2827", "config_version": "4", "current_version": "1", "detector_config_version": "1890", "extra_config_version": "1890", "ip_group_config_version": "7", "policy_config_version": "1890", "site_config_version": "1890"}, "req_average_time": 0, "req_detect_count": 0, "req_detect_time": 0, "req_detect_time_distribution": [{"latency": 0, "percent": 99}, {"latency": 0, "percent": 90}, {"latency": 0, "percent": 75}, {"latency": 0, "percent": 50}], "req_ngx_count": 0, "req_ngx_time": 0, "req_ngx_time_distribution": {}, "req_num_accepted": 0, "req_num_access_log": 0, "req_num_attack": 0, "req_num_attack_acl": 0, "req_num_attack_web": 0, "req_num_blocked": 0, "req_num_blocked_acl": 0, "req_num_blocked_web": 0, "req_num_dropped": 0, "req_num_handled": 0, "req_num_total": 0, "rsp_average_time": 0, "rsp_detect_count": 0, "rsp_detect_time": 0, "rsp_detect_time_distribution": [{"latency": 0, "percent": 99}, {"latency": 0, "percent": 90}, {"latency": 0, "percent": 75}, {"latency": 0, "percent": 50}], "rsp_ngx_count": 0, "rsp_ngx_time": 0, "rsp_ngx_time_distribution": {}, "rsp_num_accepted": 0, "rsp_num_access_log": 0, "rsp_num_attack": 0, "rsp_num_attack_acl": 0, "rsp_num_attack_web": 0, "rsp_num_blocked": 0, "rsp_num_blocked_acl": 0, "rsp_num_blocked_web": 0, "rsp_num_dropped": 0, "rsp_num_handled": 0, "rsp_num_total": 0, "time_from": "1594696127.271", "time_to": "1594696132.271", "uptime": "6 23:33:25.880", "workers": [{"conn_client": 1, "conn_client_close": 0, "conn_client_estab": 0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 0, "index": 0, "ioread": 913, "iowrite": 244}, {"conn_client": 1, "conn_client_close": 0, "conn_client_estab": 0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 0, "index": 1, "ioread": 913, "iowrite": 244}]}, "disk_info":	

Parameter	Type	Example	Description
Result	String	{"raids_status": [], "read": 0, "time_from": "1594696127", "time_to": "1594696132", "total": "1124191502336", "usage": "61553455104", "write": 229376}, "last_timestamp": "1594696127", "mario": {"access_log_stat": {"num_pending": 0, "num_processed": 3, "num_processed_last_10s": 0}, "detect_log_stat": {"num_pending": 0, "num_processed": 3, "num_processed_last_10s": 0}, "num_goroutine": 8903, "policy_version": {"acl_data_config": "11", "acl_template": "58", "acl_whitelist": "18", "detect_log_forward_config": "10", "log_aggregate_config": "18", "plugin": "17", "summary_config": "14"}, "router_message_stat": {"num_receive": 0, "num_receive_error": 0, "num_receive_error_last_10s": 0, "num_receive_last_10s": 0, "num_receive_pending": 0, "num_send": 0, "num_send_error": 0, "num_send_error_last_10s": 0, "num_send_last_10s": 0}}, "mem": 0.08940248252983965, "network_io": [{"interface": "eth0", "read": 417525, "time_from": "1594696127", "time_to": "1594696132", "write": 467457}, {"interface": "eth1", "read": 403066, "time_from": "1594696127", "time_to": "1594696132", "write": 322033}, {"interface": "ens1f0", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens1f1", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens2f0", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens2f1", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}], "received_timestamp": 1594696132, "tengine": {"config_version": 1868, "stats": {"accepts": 45, "connections": 1, "handled": 45, "requests": 2, "time_from": 1594696127, "time_to": 1594696132, "avg_time": 0}, "hostname": "c43b02111.cloud.b03.amtest21"}, "timestamp": "1594696132", "uptime": 5188576, "status": "HEALTHY"}, "services": [{"cpu": 2.413311965811966e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.007124904089239252, "name": "tengine", "status": "HEALTHY", "uptime": 603206, "version": "v3.12.0_r5"}, {"cpu": 2.523696581196581e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.004504908368650695, "name": "detector-srv", "status": "HEALTHY", "uptime": 603206, "version": "v3.12.0_r5"}, {"cpu": 0.0011938266737891738, "extra": null, "hostname": "3ed9747c2003", "mem": 0.007155565200169913, "name": "mario", "status": "HEALTHY", "uptime": 603207, "version": "v3.12.0_r5"}, {"cpu": 0.0036347603276353276, "extra": null, "hostname": "598a767919bc", "mem": 0.0373652018262435, "name": "mgt-api", "status": "HEALTHY", "uptime": 321446, "version": "v3.12.0_r5"}, {"cpu": 0.0002562163105413105, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.043149085452621895, "name": "mgt-redis", "status": "HEALTHY", "uptime": 603208, "version": "5.0"}, {"cpu": 1.5907836879432624e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.008885680945231749, "name": "agent", "status": "HEALTHY", "uptime": 603205, "version": "v3.12.0_r5"}, {"cpu": 0.037529611403212516, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.0002865208871662617, "name": "minion", "status": "HEALTHY", "uptime": 603209, "version": "v3.12.0_r5"}], "sites": [{"name": "1749", "servers": {"10.10.XX.XX:15044": "HEALTHY"}}], "_version_details": [{"service_name": "tengine", "versions": {"config_version": {"heartbeat_version": 1868, "database_version": 1868,	The returned result of the request.

Parameter	Type	Example	Description
		"version_status": "sync"}}, "service_status": "HEALTHY"}, {"service_name": "detector-srv", "versions": {"cc_config_version": {"heartbeat_version": 2827, "database_version": 2837, "version_history": [], "version_status": "fall_behind"}, "detector_config_version": {"heartbeat_version": 1890, "database_version": 1890, "version_status": "sync"}, "extra_config_version": {"heartbeat_version": 1890, "database_version": 1890, "version_status": "sync"}, "ip_group_config_version": {"heartbeat_version": 7, "database_version": 7, "version_status": "sync"}, "policy_config_version": {"heartbeat_version": 1890, "database_version": 1890, "version_status": "sync"}, "site_config_version": {"heartbeat_version": 1890, "database_version": 1890, "version_status": "sync"}}, "service_status": "HEALTHY"}, {"service_name": "mario", "versions": {"acl_data_config": {"heartbeat_version": 11, "database_version": 12, "version_history": [], "version_status": "fall_behind"}, "acl_template": {"heartbeat_version": 58, "database_version": 62, "version_history": [], "version_status": "fall_behind"}, "acl_whitelist": {"heartbeat_version": 18, "database_version": 18, "version_status": "sync"}, "detect_log_forward_config": {"heartbeat_version": 10, "database_version": 11, "version_history": [], "version_status": "fall_behind"}, "log_aggregate_config": {"heartbeat_version": 18, "database_version": 20, "version_history": [], "version_status": "fall_behind"}, "plugin": {"heartbeat_version": 17, "database_version": 20, "version_history": [], "version_status": "fall_behind"}, "summary_config": {"heartbeat_version": 14, "database_version": 14, "version_status": "sync"}}, "service_status": "HEALTHY"}]}]	

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeNodeStatus
&RegionId=cn-hangzhou
```

Sample success responses

`XML` format

```
<DescribeNodeStatusResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>[{"ha": {"services": [{"estate": "master", "healthy": true, "mstate": "idle", "
name": "redis", "url": ""}]}, "id": "c43b02111.cloud.b03.amtest21", "node": {"cpu": 0.01501
0513044737767, "detector": {"conn_client": 14, "conn_client_close": 0, "conn_client_estab":
0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 7.2e-05, "detec
tor_version": "4.1.4-5b5eb8e3", "fusion_stat": {"req": {"average_length": 0, "average_time"
: 0, "count": 0, "max_length": 0, "max_time": 0, "min_length": 0, "min_time": 0, "sd_length
": 0, "sd_time": 0, "top10_length": 0, "top10_time": 0, "top50_length": 0, "top50_time": 0,
"top90_length": 0, "top90_time": 0, "top99_length": 0, "top99_time": 0}, "rsp": {"average_l
ength": 0, "average_time": 0, "count": 0, "max_length": 0, "max_time": 0, "min_length": 0,
"min_time": 0, "sd_length": 0, "sd_time": 0, "top10_length": 0, "top10_time": 0, "top50_len
gth": 0, "top50_time": 0, "top90_length": 0, "top90_time": 0, "top99_length": 0, "top99_tim
e": 0}}, "ioread": 12782, "iowrite": 3416, "mem": 0.004292, "node": "c43b02111.cloud.b03.am
test21", "policy_version": {"cc_config_version": "2827", "config_version": "4", "current_ve
rsion": "1", "detector_config_version": "1890", "extra_config_version": "1890", "ip_group_c
onfig_version": "7", "policy_config_version": "1890", "site_config_version": "1890"}, "req
```

config_version": 7, "policy_config_version": 1690, "site_config_version": 1690}, "req_average_time": 0, "req_detect_count": 0, "req_detect_time": 0, "req_detect_time_distribution": [{"latency": 0, "percent": 99}, {"latency": 0, "percent": 90}, {"latency": 0, "percent": 75}, {"latency": 0, "percent": 50}], "req_ngx_count": 0, "req_ngx_time": 0, "req_ngx_time_distribution": {}, "req_num_accepted": 0, "req_num_access_log": 0, "req_num_attack": 0, "req_num_attack_acl": 0, "req_num_attack_web": 0, "req_num_blocked": 0, "req_num_blocked_acl": 0, "req_num_blocked_web": 0, "req_num_dropped": 0, "req_num_handled": 0, "req_num_total": 0, "rsp_average_time": 0, "rsp_detect_count": 0, "rsp_detect_time": 0, "rsp_detect_time_distribution": [{"latency": 0, "percent": 99}, {"latency": 0, "percent": 90}, {"latency": 0, "percent": 75}, {"latency": 0, "percent": 50}], "rsp_ngx_count": 0, "rsp_ngx_time": 0, "rsp_ngx_time_distribution": {}, "rsp_num_accepted": 0, "rsp_num_access_log": 0, "rsp_num_attack": 0, "rsp_num_attack_acl": 0, "rsp_num_attack_web": 0, "rsp_num_blocked": 0, "rsp_num_blocked_acl": 0, "rsp_num_blocked_web": 0, "rsp_num_dropped": 0, "rsp_num_handled": 0, "rsp_num_total": 0, "time_from": "1594696127.271", "time_to": "1594696132.271", "uptime": "6 23:33:25.880", "workers": [{"conn_client": 1, "conn_client_close": 0, "conn_client_estab": 0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 0, "index": 0, "ioread": 913, "iowrite": 244}, {"conn_client": 1, "conn_client_close": 0, "conn_client_estab": 0, "conn_server": 0, "conn_server_close": 0, "conn_server_estab": 0, "cpu": 0, "index": 1, "ioread": 913, "iowrite": 244}]}, "disk_info": {"raids_status": [], "read": 0, "time_from": "1594696127", "time_to": "1594696132", "total": "1124191502336", "usage": "61553455104", "write": 229376}, "last_timestamp": "1594696127", "mario": {"access_log_stat": {"num_pending": 0, "num_processed": 3, "num_processed_last_10s": 0}, "detect_log_stat": {"num_pending": 0, "num_processed": 3, "num_processed_last_10s": 0}, "num_goroutine": 8903, "policy_version": {"acl_data_config": "11", "acl_template": "58", "acl_whitelist": "18", "detect_log_forward_config": "10", "log_aggregate_config": "18", "plugin": "17", "summary_config": "14"}, "router_message_stat": {"num_receive": 0, "num_receive_error": 0, "num_receive_error_last_10s": 0, "num_receive_last_10s": 0, "num_receive_pending": 0, "num_send": 0, "num_send_error": 0, "num_send_error_last_10s": 0, "num_send_last_10s": 0}}, "mem": 0.08940248252983965, "network_io": [{"interface": "eth0", "read": 417525, "time_from": "1594696127", "time_to": "1594696132", "write": 467457}, {"interface": "eth1", "read": 403066, "time_from": "1594696127", "time_to": "1594696132", "write": 322033}, {"interface": "ens1f0", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens1f1", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens2f0", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}, {"interface": "ens2f1", "read": 0, "time_from": "1594696127", "time_to": "1594696132", "write": 0}], "received_timestamp": 1594696132, "tengine": {"config_version": 1868, "stats": {"accepts": 45, "connections": 1, "handled": 45, "requests": 2, "time_from": 1594696127, "time_to": 1594696132, "avg_time": 0}, "hostname": "c43b02111.cloud.b03.amtest21"}, "timestamp": "1594696132", "uptime": 5188576, "status": "HEALTHY"}, "services": [{"cpu": 2.413311965811966e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.007124904089239252, "name": "tengine", "status": "HEALTHY", "uptime": 603206, "version": "v3.12.0_r5"}, {"cpu": 2.5236965811965812e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.004504908368650695, "name": "detector-srv", "status": "HEALTHY", "uptime": 603206, "version": "v3.12.0_r5"}, {"cpu": 0.0011938266737891738, "extra": null, "hostname": "3ed9747c2003", "mem": 0.007155565200169913, "name": "mario", "status": "HEALTHY", "uptime": 603207, "version": "v3.12.0_r5"}, {"cpu": 0.0036347603276353276, "extra": null, "hostname": "598a767919bc", "mem": 0.0373652018262435, "name": "mgt-api", "status": "HEALTHY", "uptime": 321446, "version": "v3.12.0_r5"}, {"cpu": 0.0002562163105413105, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.043149085452621895, "name": "mgt-redis", "status": "HEALTHY", "uptime": 603208, "version": "5.0"}, {"cpu": 1.5907836879432624e-05, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.008885680945231749, "name": "agent", "status": "HEALTHY", "uptime": 603205, "version": "v3.12.0_r5"}, {"cpu": 0.037529611403212516, "extra": null, "hostname": "c43b02111.cloud.b03.amtest21", "mem": 0.0002865208871662617, "name": "minion", "status": "HEALTHY", "uptime": 603209, "version": "v3.12.0_r5"}], "sites": [{"name": "1749", "servers": {"10.10.XX.XX:15044": "HEALTHY"}}], "_version_details": 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</DescribeNodeStatusResponse>

`JSON` format

{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"[{\"ha\": {\"services\": [{\"estate\": \"master\", \"healthy\": true, \"mstate\": \"idle\", \"name\": \"redis\", \"url\": \"\"}]}, \"id\": \"c43b02111.cloud.b03.amtest21\", \"node\": {\"cpu\": 0.015010513044737767, \"detector\": {\"conn_client\": 14, \"conn_client_close\": 0, \"conn_client_estab\": 0, \"conn_server\": 0, \"conn_server_close\": 0, \"conn_server_estab\": 0, \"cpu\": 7.2e-05, \"detector_version\": \"4.1.4-5b5eb8e3\", \"fusion_stat\": {\"req\": {\"average_length\": 0, \"average_time\": 0, \"count\": 0, \"max_length\": 0, \"max_time\": 0, \"min_length\": 0, \"min_time\": 0, \"sd_length\": 0, \"sd_time\": 0, \"top10_length\": 0, \"top10_time\": 0, \"top50_length\": 0, \"top50_time\": 0, \"top90_length\": 0, \"top90_time\": 0, \"top99_length\": 0, \"top99_time\": 0}, \"rsp\": {\"average_length\": 0, \"average_time\": 0, \"count\": 0, \"max_length\": 0, \"max_time\": 0, \"min_length\": 0, \"min_time\": 0, \"sd_length\": 0, \"sd_time\": 0, \"top10_length\": 0, \"top10_time\": 0, \"top50_length\": 0, \"top50_time\": 0, \"top90_length\": 0, \"top90_time\": 0, \"top99_length\": 0, \"top99_time\": 0}}, \"ioread\": 12782, \"iowrite\": 3416, \"mem\": 0.004292, \"node\": \"c43b02111.cloud.b03.amtest21\", \"policy_version\": {\"cc_config_version\": \"2827\", \"config_version\": \"4\", \"current_version\": \"1\", \"detector_config_version\": \"1890\", \"extra_config_version\": \"1890\", \"ip_group_config_version\": \"7\", \"policy_config_version\": \"1890\", \"site_config_version\": \"1890\"}, \"req_average_time\": 0, \"req_detect_count\": 0, \"req_detect_time\": 0, \"req_detect_time_distribution\": [{\"latency\": 0, \"percent\": 99}, {\"latency\": 0, \"percent\": 90}, {\"latency\": 0, \"percent\": 75}, {\"latency\": 0, \"percent\": 50}], \"req_ngx_count\": 0, \"req_ngx_time\": 0, \"req_ngx_time_distribution\": {}, \"req_num_accepted\": 0, \"req_num_access_log\": 0, \"req_num_attack\": 0, \"req_num_attack_acl\": 0, \"req_num_attack_web\": 0, \"req_num_blocked\": 0, \"req_num_blocked_acl\": 0, \"req_num_blocked_web\": 0, \"req_num_dropped\": 0, \"req_num_handled\": 0, \"req_num_total\": 0, \"rsp_average_time\": 0, \"rsp_detect_count\": 0, \"rsp_detect_time\": 0, \"rsp_detect_time_distribution\": [{\"latency\": 0, \"percent\": 99}, {\"latency\": 0, \"percent\": 90}, {\"latency\": 0, \"percent\": 75}, {\"latency\": 0, \"percent\": 50}], \"rsp_ngx_count\": 0, \"rsp_ngx_time\": 0, \"rsp_ngx_time_distribution\"

: {}, \"rsp_num_accepted\": 0, \"rsp_num_access_log\": 0, \"rsp_num_attack\": 0, \"rsp_num_attack_acl\": 0, \"rsp_num_attack_web\": 0, \"rsp_num_blocked\": 0, \"rsp_num_blocked_acl\": 0, \"rsp_num_blocked_web\": 0, \"rsp_num_dropped\": 0, \"rsp_num_handled\": 0, \"rsp_num_total\": 0, \"time_from\": \"1594696127.271\", \"time_to\": \"1594696132.271\", \"uptime\": \"6 23:33:25.880\", \"workers\": [{\"conn_client\": 1, \"conn_client_close\": 0, \"conn_client_estab\": 0, \"conn_server\": 0, \"conn_server_close\": 0, \"conn_server_estab\": 0, \"cpu\": 0, \"index\": 0, \"ioread\": 913, \"iowrite\": 244}, {\"conn_client\": 1, \"conn_client_close\": 0, \"conn_client_estab\": 0, \"conn_server\": 0, \"conn_server_close\": 0, \"conn_server_estab\": 0, \"cpu\": 0, \"index\": 1, \"ioread\": 913, \"iowrite\": 244}]}, \"disk_info\": {\"raids_status\": [], \"read\": 0, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"total\": \"1124191502336\", \"usage\": \"61553455104\", \"write\": 229376}, \"last_timestamp\": \"1594696127\", \"mario\": {\"access_log_stat\": {\"num_pending\": 0, \"num_processed\": 3, \"num_processed_last_10s\": 0}, \"detect_log_stat\": {\"num_pending\": 0, \"num_processed\": 3, \"num_processed_last_10s\": 0}, \"num_goroutine\": 8903, \"policy_version\": {\"acl_data_config\": \"11\", \"acl_template\": \"58\", \"acl_whitelist\": \"18\", \"detect_log_forward_config\": \"10\", \"log_aggregate_config\": \"18\", \"plugin\": \"17\", \"summary_config\": \"14\"}, \"router_message_stat\": {\"num_receive\": 0, \"num_receive_error\": 0, \"num_receive_error_last_10s\": 0, \"num_receive_last_10s\": 0, \"num_receive_pending\": 0, \"num_send\": 0, \"num_send_error\": 0, \"num_send_error_last_10s\": 0, \"num_send_last_10s\": 0}}, \"mem\": 0.08940248252983965, \"network_io\": [{\"interface\": \"eth0\", \"read\": 417525, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 467457}, {\"interface\": \"eth1\", \"read\": 403066, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 322033}, {\"interface\": \"ens1f0\", \"read\": 0, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 0}, {\"interface\": \"ens1f1\", \"read\": 0, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 0}, {\"interface\": \"ens2f0\", \"read\": 0, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 0}, {\"interface\": \"ens2f1\", \"read\": 0, \"time_from\": \"1594696127\", \"time_to\": \"1594696132\", \"write\": 0}], \"received_timestamp\": 1594696132, \"tengine\": {\"config_version\": 1868, \"stats\": {\"accepts\": 45, \"connections\": 1, \"handled\": 45, \"requests\": 2, \"time_from\": 1594696127, \"time_to\": 1594696132, \"avg_time\": 0}, \"hostname\": \"c43b02111.cloud.b03.amtest21\"}, \"timestamp\": \"1594696132\", \"uptime\": 5188576, \"status\": \"HEALTHY\"}, \"services\": [{\"cpu\": 2.413311965811966e-05, \"extra\": null, \"hostname\": \"c43b02111.cloud.b03.amtest21\", \"mem\": 0.007124904089239252, \"name\": \"tengine\", \"status\": \"HEALTHY\", \"uptime\": 603206, \"version\": \"v3.12.0_r5\"}, {\"cpu\": 2.523696581196581e-05, \"extra\": null, \"hostname\": \"c43b02111.cloud.b03.amtest21\", \"mem\": 0.004504908368650695, \"name\": \"detector-srv\", \"status\": \"HEALTHY\", \"uptime\": 603206, \"version\": \"v3.12.0_r5\"}, {\"cpu\": 0.0011938266737891738, \"extra\": null, \"hostname\": \"3ed9747c2003\", \"mem\": 0.007155565200169913, \"name\": \"mario\", \"status\": \"HEALTHY\", \"uptime\": 603207, \"version\": \"v3.12.0_r5\"}, {\"cpu\": 0.0036347603276353276, \"extra\": null, \"hostname\": \"598a767919bc\", \"mem\": 0.0373652018262435, \"name\": \"mgt-api\", \"status\": \"HEALTHY\", \"uptime\": 321446, \"version\": \"v3.12.0_r5\"}, {\"cpu\": 0.0002562163105413105, \"extra\": null, \"hostname\": \"c43b02111.cloud.b03.amtest21\", \"mem\": 0.043149085452621895, \"name\": \"mgt-redis\", \"status\": \"HEALTHY\", \"uptime\": 603208, \"version\": \"5.0\"}, {\"cpu\": 1.5907836879432624e-05, \"extra\": null, \"hostname\": \"c43b02111.cloud.b03.amtest21\", \"mem\": 0.008885680945231749, \"name\": \"agent\", \"status\": \"HEALTHY\", \"uptime\": 603205, \"version\": \"v3.12.0_r5\"}, {\"cpu\": 0.037529611403212516, \"extra\": null, \"hostname\": \"c43b02111.cloud.b03.amtest21\", \"mem\": 0.0002865208871662617, \"name\": \"minion\", \"status\": \"HEALTHY\", \"uptime\": 603209, \"version\": \"v3.12.0_r5\"}], \"sites\": [{\"name\": \"1749\", \"servers\": {\"10.10.XX.XX:15044\": \"HEALTHY\"}}], \"_version_details\": [{\"service_name\": \"tengine\", \"versions\": {\"config_version\": {\"heartbeat_version\": 1868, \"database_version\": 1868, \"version_status\": \"sync\"}}, \"service_status\": \"HEALTHY\"}, {\"service_name\": \"detector-srv\", \"versions\": {\"cc_config_version\": {\"heartbeat_version\": 2827, \"database_version\": 2837, \"version_history\": [], \"version_status\": \"fall behind\"}, \"detector_config_version\": {\"heartbeat_version\": 1890, \"database_v

```
. \"fall_behind\" }, \"detector_config_version\": {\"heartbeat_version\": 1890, \"database_v
ersion\": 1890, \"version_status\": \"sync\"}, \"extra_config_version\": {\"heartbeat_versi
on\": 1890, \"database_version\": 1890, \"version_status\": \"sync\"}, \"ip_group_config_ve
rsion\": {\"heartbeat_version\": 7, \"database_version\": 7, \"version_status\": \"sync\"},
\"policy_config_version\": {\"heartbeat_version\": 1890, \"database_version\": 1890, \"vers
ion_status\": \"sync\"}, \"site_config_version\": {\"heartbeat_version\": 1890, \"database_
version\": 1890, \"version_status\": \"sync\"}}, \"service_status\": \"HEALTHY\"}, {\"servi
ce_name\": \"mario\", \"versions\": {\"acl_data_config\": {\"heartbeat_version\": 11, \"dat
abase_version\": 12, \"version_history\": [], \"version_status\": \"fall_behind\"}, \"acl_t
emplate\": {\"heartbeat_version\": 58, \"database_version\": 62, \"version_history\": [], \
"version_status\": \"fall_behind\"}, \"acl_whitelist\": {\"heartbeat_version\": 18, \"datab
ase_version\": 18, \"version_status\": \"sync\"}, \"detect_log_forward_config\": {\"heartbe
at_version\": 10, \"database_version\": 11, \"version_history\": [], \"version_status\": \"
fall_behind\"}, \"log_aggregate_config\": {\"heartbeat_version\": 18, \"database_version\":
20, \"version_history\": [], \"version_status\": \"fall_behind\"}, \"plugin\": {\"heartbeat
_version\": 17, \"database_version\": 20, \"version_history\": [], \"version_status\": \"fa
ll_behind\"}, \"summary_config\": {\"heartbeat_version\": 14, \"database_version\": 14, \"v
ersion_status\": \"sync\"}}, \"service_status\": \"HEALTHY\"}]}]"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.9.3. DescribeRealTimeAccess

Queries the monitoring information about access status.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeRealTimeAccess	The operation that you want to perform. Set the value to DescribeRealTimeAccess.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Type	String	Yes	ip	The type to filter monitoring information. Valid values: • **ip** • **session** • **website** • **url** • If you leave this parameter unspecified, all monitoring information is returned. These types can be combined to filter monitoring information. Example: **ipwebsite**.

Parameter	Type	Required	Example	Description
OrderBy	String	Yes	count	The method to sort monitoring information. Valid values: • **count**: the number of requests • **time**: the average time of responses
Limit	Integer	No	100	The upper limit of returned entries. Default value: 100.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"data": [{"ip": "10.10.XX.XX", "count": 2}], "type": "top_ip", "order_by": "count"}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeRealTimeAccess
&RegionId=cn-hangzhou
&Type=ip
&OrderBy=count
&Limit=100
```

Sample success responses

`XML` format

```
<DescribeRealTimeAccessResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"data": [{"ip": "10.10.XX.XX", "count": 2}], "type": "top_ip", "order_by": "co
unt"}</Result>
</DescribeRealTimeAccessResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"data\": [{\"ip\": \"10.10.XX.XX\", \"count\": 2}], \"type\": \"top_ip\", \"order_by\": \"count\"}"
}
```


Error codes

For a list of error codes, see Error codes.

19.1.4.9.4. DescribeAttackDetectionAggregation

Queries the statistics on attack detection aggregation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAttackDetectionAggregation	The operation that you want to perform. Set the value to DescribeAttackDetectionAggregation.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
AggregationType	String	Yes	source	The type of attack detection aggregation. Valid values: • **source** • **destination**

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"aggregate_type": "src_ip", "values": [{"item": "10.10.XX.XX", "value": 3, "timestamp": "1594695947"}]}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeAttackDetectionAggregation
&RegionId=cn-hangzhou
&AggregationType=source
```

Sample success responses

`XML` format

```
<DescribeAttackDetectionAggregationResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"aggregate_type": "src_ip", "values": [{"item": "10.10.XX.XX", "value": 3, "ti
mestamp": "1594695947"}]}</Result>
</DescribeAttackDetectionAggregationResponse>
```

`JSON` format

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeAttackDetectionAggregation
&RegionId=cn-hangzhou
&AggregationType=source
```

Error codes

For a list of error codes, see Error codes.

19.1.4.9.5. DescribeAttackDetectionAggregationConfig

Queries the configurations of attack detection aggregation.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	DescribeAttackDetectionAggregationConfig	The operation that you want to perform. Set the value to DescribeAttackDetectionAggregationConfig.
RegionId	String	Yes	cn-hangzhou	The ID of the region.

Response parameters

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"is_enabled": true}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=DescribeAttackDetectionAggregationConfig
&RegionId=cn-hangzhou
```

Sample success responses

`XML` format

```
<DescribeAttackDetectionAggregationConfigResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result>{"is_enabled": true}</Result>
</DescribeAttackDetectionAggregationConfigResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":"{\"is_enabled\": true}"
}
```

Error codes

For a list of error codes, see Error codes.

19.1.4.9.6. ToggleAttackDetectionAggregation

Enables or disables the attack detection aggregation feature.

Request parameters

Parameter	Type	Required	Example	Description
Action	String	Yes	ToggleAttackDetectionAggregation	The operation that you want to perform. Set the value to ToggleAttackDetectionAggregation.
RegionId	String	Yes	cn-hangzhou	The ID of the region.
Enable	Boolean	No	true	Specifies whether to enable the attack detection aggregation feature. Valid values: • **true** • **false** Default value: **true**.

Response parameters

Parameter	Type	Example	Description

Parameter	Type	Example	Description
RequestId	String	53e59af3-3209-452a-853c-ac10ad815929	The ID of the request.
Result	String	{"is_enabled": true}	The returned result of the request.

Examples

Sample requests

```
https://semawaf.[ RegionId].aliyuncs.com/?Action=ToggleAttackDetectionAggregation
&RegionId=cn-hangzhou
&Enable=true
```

Sample success responses

`XML` format

```
<ToggleAttackDetectionAggregationResponse>
    <RequestId>53e59af3-3209-452a-853c-ac10ad815929</RequestId>
    <Result></Result>
</ToggleAttackDetectionAggregationResponse>
```

`JSON` format

```
{
  "RequestId":"53e59af3-3209-452a-853c-ac10ad815929",
  "Result":""
}
```

Error codes

For a list of error codes, see Error codes.

19.1.5. Error codes

This topic describes the error codes returned by operations for Apsara Stack Security.

Common errors of Apsara Stack Security

Error code	Error message	Description
yd.error.all.10001	Authorization required.	The error message returned because you are not authorized to perform the operation. Check the account permissions.
yd.error.all.10002	A system error has occurred. Try again later.	The error message returned because a system error has occurred. Try again later.

Error code	Error message	Description
yd.error.all.10003	The parameter is invalid.	The error message returned because the request parameter is invalid. Check the request parameter and try again.
yd.error.all.other	A system error has occurred.	The error message returned because a system error has occurred. Try again later.
yd.error.all.ConsoleSystemError_1001	An internal error has occurred.	The error message returned because a system error has occurred. Try again later.
yd.error.all.ConsoleSystemError_1007	The specified API is unavailable.	The error message returned because the operation has been brought offline. Contact Alibaba Cloud technical support.
yd.error.all.ConsoleSystemError_1008	An error occurred when you verify postOnly.	The error message returned because the verification has failed. Check the common request parameters and try again.
yd.error.all.ConsoleSystemError_1009	csrfToken must not be empty.	The error message returned because the csrfToken field is empty. Check the common request parameters and try again.
yd.error.all.ConsoleSystemError_1010	An error occurred when you verify csrfToken.	The error message returned because the verification has failed. Check the common request parameters and try again.
yd.error.all.ConsoleSystemError_1011	The Region ID must not be empty.	The error message returned because the RegionId request parameter is empty. Check the parameter.
yd.error.all.ConsoleSystemError_1012	The specified region ID format is invalid.	The error message returned because the specified region ID format is invalid. Check the RegionId parameter.
yd.error.all.ConsoleSystemError_1013	The parameter is null.	The error message returned because the specified request parameter is empty. Check the request parameter and try again.

Error code	Error message	Description
yd.error.all.ConsoleSystemError_1014	The specified parameter format is invalid.	The error message returned because the specified parameter format is invalid. Check the request parameter and try again.
yd.error.all.ConsoleNeedLogin	You are not logged on.	The error message returned because you are not authorized to perform the operation. Check the account permissions.
yd.error.all.InvalidApi	The API is invalid.	The error message returned because an operation exception has occurred. Try again later.
yd.error.all.InvalidParameter	The parameter is invalid.	The error message returned because the specified parameter is invalid. Check the request parameter and try again.
yd.error.all.InvalidResult	The return value is invalid.	The error message returned because the return value is invalid. Try again later.
yd.error.all.PropertyConvertFailed	An error occurred during conversion.	The error message returned because property conversion has failed. Try again later.
yd.error.all.NoPermission	Authorization required.	The error message returned because you are not authorized to perform the operation. Check the account permissions.
yd.error.all.ServerError	A server error has occurred.	The error message returned because a server error has occurred. Try again later or contact Alibaba Cloud technical support.
yd.error.all.UnkownError	An internal error has occurred.	The error message returned because an unknown error has occurred. Try again later or contact Alibaba Cloud technical support.

Errors of Threat Detection Service

Error code	Error message	Description
yd.error.sas.1	The specified field has not been found in the metadata.	The error message returned because the field you queried does not exist in the metadata. Check the request and try again.

Error code	Error message	Description
yd.error.sas.2	An error occurred when you invoke the task engine. Try again later.	The error message returned because the system has failed to call the task engine. Try again later.
yd.error.sas.3	An error occurred when you start the task. Try again later.	The error message returned because the system has failed to start the task. Try again later.
yd.error.sas.4	An error occurred when you stop the task. Try again later.	The error message returned because the system has failed to stop the task. Try again later.
yd.error.sas.5	An error occurred when you restart the task. Try again later.	The error message returned because the system has failed to restart the task. Try again later.
yd.error.sas.6	An error occurred when you obtain the task status. Try again later.	The error message returned because the system has failed to obtain the task status. Try again later.
yd.error.sas.7	An error occurred when you delete the task. Try again later.	The error message returned because the system has failed to delete the task. Try again later.
yd.error.sas.8	The specified table does not contain metadata.	The error message returned because the table you queried does not contain metadata. Check the request and try again.
yd.error.sas.100	Request failed. Refresh the page and try again.	The error message returned because the request has failed. Try again later.
yd.error.sas.101	The parameter is invalid.	The error message returned because the parameter is invalid. Check the request and try again.
yd.error.sas.103	Request failed.	The error message returned because the request has failed. Check the request and try again.
yd.error.sas.400	The asset is under protection. Uninstall the Server Guard client and try again.	The error message returned because the asset you want to delete is protected. Uninstall the Server Guard agent from the server and try again.
yd.error.sas.500	A system error has occurred.	The error message returned because a system error has occurred. Contact Alibaba Cloud technical support.

Error code	Error message	Description
yd.error.sas.501	The function is unavailable in the current version.	The error message returned because the version you used does not support this feature.
yd.error.sas.502	You are not authorized to access the instance.	The error message returned because you are not authorized to manage the server.

Errors of Anti-DDoS

Error code	Error message	Description
yd.error.ddos.400	An error occurred when you access the server. Try again later.	The error message returned because the system has failed to access the server. Check the request and try again.
yd.error.ddos.500	An error occurred on the server.	The error message returned because a server error has occurred. Contact Alibaba Cloud technical support.
yd.error.ddos.UNKNOWN_EXCEPTION	An internal error occurred.	The error message returned because an unknown error has occurred. Contact Alibaba Cloud technical support.
yd.error.ddos.REQUEST_TIMEOUT	The request has timed out.	The error message returned because the request has timed out. Try again later.
yd.error.ddos.SERVER_FAILED	An operation error occurred.	The error message returned because the operation has failed. Contact Alibaba Cloud technical support.
yd.error.ddos.NOT_AUTHORIZED	You are not authorized to perform this operation.	The error message returned because you are not authorized to perform the operation. Check the account permissions.
yd.error.ddos.PARAMETER_INVALID	The specified parameter is invalid or missing.	The error message returned because the specified request parameter is invalid. Check the request parameter and try again.
yd.error.ddos.IP_SEGMENT_INVALID	The specified CIDR block is invalid.	The error message returned because the specified CIDR block is invalid. Check the CIDR block specified in the request parameter.

Error code	Error message	Description
yd.error.ddos.IP_SEGMENT_REPEAT	One CIDR block cannot be used in different regions. Enter another CIDR block.	The error message returned because one CIDR block belongs to multiple regions. Check the CIDR block specified in the request parameter.
yd.error.ddos.IP_SEGMENT_ALREADY	The specified CIDR block already exists.	The error message returned because the specified CIDR block has been used. Check the CIDR block specified in the request parameter.
yd.error.ddos.IP_SEGMENT_MASK_LENGTH_ERR	The prefix length must be less than 24 bits.	The error message returned because the mask contains more than 24 bits. Check the CIDR block mask specified in the request parameter.
yd.error.ddos.QUERY_REGION_LIST_ERR	An error occurred when you obtain the region list.	The error message returned because the system has failed to obtain the region list. Try again later.
yd.error.ddos.IP_SEGMENT_OPERATION_ERR	An error occurred when you perform the operation on the CIDR block.	The error message returned because the system has failed to process the CIDR block. Try again later.
yd.error.ddos.QUERY_IP_SEGMENT_ERR	An error occurred when you obtain the CIDR block.	The error message returned because the system has failed to obtain the information about the CIDR block. Try again later.
yd.error.ddos.MODIFY_IP_SEGMENT_ERR	An error occurred when you modify the CIDR block.	The error message returned because the system has failed to modify the information about the CIDR block. Try again later.
yd.error.ddos.IP_SEGMENT_TYPE_ERR	Check whether the type of the CIDR block (internal or external) is specified.	The error message returned because the CIDR block type is not specified. Check the CIDR block type and try again.
yd.error.ddos.CANCEL_FLOW_CLEAN_ERR	An error occurred when you cancel traffic scrubbing. Check the network connection to Beaver.	The error message returned because the system has failed to cancel traffic scrubbing. Check the network connection to Network Traffic Monitoring System and try again.

Error code	Error message	Description
yd.error.ddos.QUERY_FLOW_ANALYSIS_ERR	An error occurred when you obtain the traffic analysis result. Check the network connection to Beaver.	The error message returned because the system has failed to obtain the traffic analysis result. Check the network connection to Network Traffic Monitoring System and try again.
yd.error.ddos.QUERY_BEAVER_URL_ERR	An error occurred when you obtain the Beaver URL.	The error message returned because the system has failed to obtain the URL of Network Traffic Monitoring System. Check the network connection to Network Traffic Monitoring System and try again.
yd.error.ddos.SET_VALVE_INVALID	The specified thresholds are invalid.	The error message returned because the threshold verification has failed. Check the thresholds and try again.
yd.error.ddos.VALVE_DEFAULT_ALREADY	You cannot add the default threshold again.	The error message returned because the system has failed to add the default threshold, which can only be modified.
yd.error.ddos.NOT_BELONG_BEAVER_IP_SEGMENT	Check whether the specified CIDR block belongs to the internal network of Beaver.	The error message returned because the CIDR block you entered is not in the internal CIDR block of Network Traffic Monitoring System. Check the CIDR block.
yd.error.ddos.VALVE_DELETE_ERR	Do not delete the threshold.	The error message returned because the system has failed to delete the default threshold or the threshold of 128.0.0.0/1.
yd.error.ddos.QUERY_CODE_ERR	An error occurred when you obtain the product configuration.	The error message returned because the system has failed to obtain the dictionary. Try again later.
yd.error.ddos.IS_OPENED	Enabled.	The error message returned because the specified switch has been turned on.
yd.error.ddos.IS_CLOSED	Disabled.	The error message returned because the specified switch has been turned off.

Errors of Server Guard

Error code	Error message	Description
yd.error.aqs.REQUEST_FAILED	Request failed. Try again later.	The error message returned because the request has failed. Try again later.

20.Log Service

20.1. Developer Guide

20.1.1. API Reference

20.1.1.1. Overview

Log Service allows you to collect and manage logs by using the Apsara Uni-manager Management Console. In addition, Log Service allows you to use the Log Service API to collect logs, query logs, and manage your projects and Logstores.

Object	Operation
Log	Basic terms such as log and log group
Project	ListProject, CreateProject, DeleteProject, GetProject, and UpdateProject
	GetProjectLogs (Queries all logs in a project)
Config	ListConfig, CreateConfig, DeleteConfig, GetConfig, and UpdateConfig
	GetAppliedMachineGroups (Queries the machine groups to which a Logtail configuration file is applied)
MachineGroup	ListMachineGroup, CreateMachineGroup, DeleteMachineGroup, GetMachineGroup, and UpdateMachineGroup
	ApplyConfigToMachineGroup and RemoveConfigFromMachineGroup (Deletes a Logtail configuration file)
	GetAppliedConfigs (Queries the applied Logtail configuration files)
Logstore	ListLogstore, CreateLogstore, DeleteLogstore, GetLogstore, and UpdateLogstore
	GetLogs (Queries logs) and GetHistograms (Queries the distribution of logs)
Index	GetIndex, CreateIndex, DeleteIndex, and UpdateIndex
	ListShards, SplitShard, and MergeShards
	PostLog (Writes logs)

Shard Object	Operation
	GetCursor (Locates logs)
	PullLogs (Consumes logs)
Consumer group	CreateConsumerGroup, DeleteConsumerGroup, ListConsumerGroup, and UpdateConsumerGroup
	HeartBeat (Sends heartbeat packets), GetCheckPoint, and UpdateCheckPoint

You can call the API to perform the following operations:

- Collect logs based on Logtail configurations and Logtail machine group.
- Create Logstores and write logs to or read logs from the Logstores.

> **Note**
> - The Log Service API is a RESTful API based on the HTTP protocol.
> - Security verification is required for all API requests. For information about the API request signature method and process, see Request signatures.

20.1.1.2. Common request headers

The Log Service API is a RESTful API based on the HTTP protocol. The Log Service API supports a set of common request headers that can be used in all API requests. Each Log Service API request must provide a common request header. The following table describes the fields of the common request headers.

Header field	Type	Description
Accept	String	The type of the response that the client expects Log Service to return. Two response types are supported: application/json and application/x-protobuf. This field is optional and valid for only GET requests. The specific value is subject to the definition of each API.
Accept-Encoding	String	The compression algorithm that the client expects Log Service to return. LZ4 and DEFLATE are supported. The value can also be an empty string, indicating that no compression is performed. This field is optional and valid only for GET requests. The specific value is subject to the definition of each API.
Authorization	String	The signature content. For more information, see Request signatures.
Content-Length	Numeric value	The length of the HTTP request body defined in RFC 2616. If the request does not have a body, this field is not required.

Header field	Type	Description
Content-MD5	String	The uppercase string that is generated after the request body is calculated based on the MD5 algorithm. If the request does not have a body, this field is not required.
Content-Type	String	The type of the HTTP request body defined in RFC 2616. Log Service API requests support only two types: application and x-protobuf. If the request does not have a body, this field is not required. The specific value is subject to the definition of each API.
Date	String	The time when the request is sent. Only the RFC 822 format is supported. The GMT standard time is used. The formatted string is %a, %d %b %Y %H:%M:%S GMT, for example, Mon, 3 Jan 2010 08:33:47 GMT.
Host	String	The complete hostname of the HTTP request. The value does not include protocol headers such as `http://`. Example: `big-game.regionid.example.com`.
x-log-apiversion	String	The API version. The current version is 0.6.0.
x-log-bodyrawsize	Numeric value	The initial size of the request body. If the request does not have a body, the value is 0. If the request body is compressed, the value is the size of the initial data before the compression. Valid values: 0 to 3 × 1024 × 1024. This field is optional and only required when the request body is compressed.
x-log-compresstype	String	The compression type of the API request body. LZ4 and DEFLATE that are defined in RFC 1951 are supported. If you want to use the ZLIB compression type, see RFC 1950. If the request body is not compressed, this field is not required.
x-log-date	String	The time when the request is sent. The time format is the same as that of the Date field. This field is optional. If a request contains this field, the value of this field replaces the value of the Date field for the request verification performed by Log Service. The Date field must be provided regardless of whether a request has an x-log-date field.
x-log-signaturemethod	String	The signature calculation method. Set the value to `hmac-sha1`.

Note

- The maximum difference between the time represented by the Date field of a request and the time when Log Service receives the request is 15 minutes. If the difference exceeds 15 minutes, Log Service rejects the request. If an x-log-date field is specified in the request, the time difference is calculated based on the value of the x-log-date field.
- If the compression algorithm is specified in x-log-compresstype of a request, the raw data must be compressed and then placed into the HTTP request body. The values of Content-Length and Content-MD5 fields are calculated based on the compressed HTTP body.
- The value of the Date field cannot be specified for the HTTP requests sent by some platforms. As a result, no correct value of the Date field is available to calculate the request signature. In this case, you must specify an x-log-date field and use the value of this field to calculate the request signature. After Log Service receives an API request, it checks whether the request contains an x-log-date field. If yes, Log Service uses the value of the x-log-date field for signature verification. If no, Log Service uses the value of the standard HTTP field Date for signature verification.

20.1.1.3. Common response headers

The Log Service API is a RESTful API based on the HTTP protocol. Each Log Service API response provides a common response header. The following table describes the fields in the common response headers.

Header field	Type	Description
Content-Length	Numeric value	The length of the HTTP response defined in RFC 2616.
Content-MD5	String	The MD5 value of the HTTP response defined in RFC 2616. This value is an uppercase string after the request body is calculated based on the MD5 algorithm.
Content-Type	String	The type of the HTTP response defined in RFC 2616. Log Service supports two response types: application/json and application/x-protobuf.
Date	String	The time when the request is returned. Only the RFC 822 format is supported. The GMT standard time is used. The formatted string is %a, %d %b %Y %H:%M:%S GMT, for example, Mon, 3 Jan 2010 08:33:47 GMT.
x-log-requestid	String	The unique ID that marks the request. The ID is generated by Log Service. This response header field is irrelevant to applications. It is used to troubleshoot problems. To troubleshoot failed API requests, you can provide this ID to the technical support team of Log Service.

20.1.1.4. Request signatures

Each HTTP request of a Log Service API operation must pass security verification to ensure log data security. The security verification is performed by using the symmetric encryption algorithm. You can use an AccessKey pair for security verification.

The security verification process of an API request is as follows:

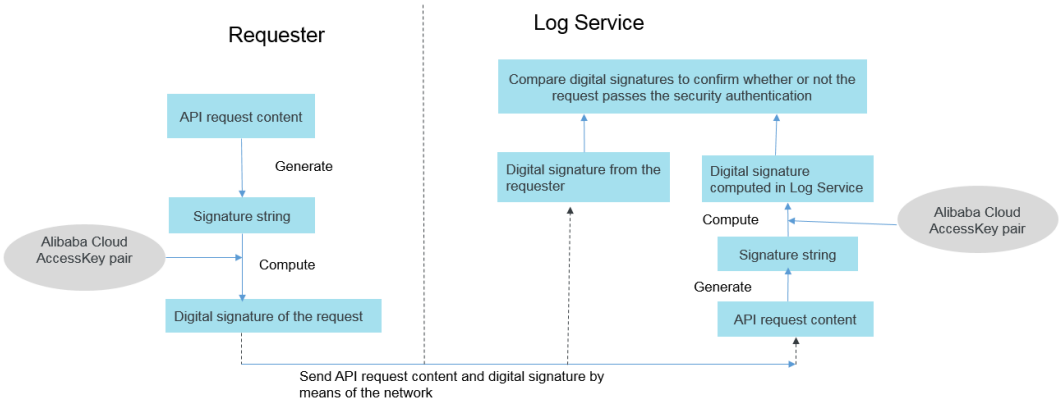
1. The requester generates a signature string based on the API request content, including the HTTP header and body.
2. The requester uses an AccessKey pair that consists of an AccessKey ID and AccessKey secret to sign the signature string. A digital signature is generated for this API request.
3. The requester sends both the API request content and digital signature to Log Service.
4. Log Service receives the request, and then repeats steps 1 and 2.

   > **Note** Log Service retrieves the AccessKey pair from the backend to calculate the signature string and generate the expected digital signature for this request.

5. The server compares the expected digital signature with the digital signature sent from the requester. If both signatures are the same, the request passes the security verification. Otherwise, the request is rejected.

The following figure shows the security verification process.

Security verification process



The security verification process can also be used for the following purposes:

- Identify the user that sends the API request. A user must specify the AccessKey pair that is used to generate the digital signature before the user sends the API request. Then, Log Service can use the AccessKey pair to identify the user and implement access control.
- Check whether the API request is intercepted and tampered with during transmission. Log Service recalculates the signature string based on the received API request. If the API request is intercepted and tampered with during transmission, the API request cannot pass the security verification.

Sign an API request

To pass the security verification for an API request, you must sign the API request on the requester to generate a digital signature. You must also use the Authorization field to transmit the digital signature of the API request over the network. The format of the Authorization field is as follows:

```
Authorization:LOG <AccessKeyId>:<Signature>
```

In the preceding format, the value of the Authorization field contains the AccessKey ID. The AccessKey secret is used to construct the signature. To construct the signature, follow these steps:

1. Prepare an AccessKey pair.

   To generate a digital signature for an API request, you must use an AccessKey pair. The AccessKey pair consists of an AccessKey ID and an AccessKey secret.

2. Generate a signature string for the API request.

   The signature string of a Log Service API operation is generated based on the method, header, and body of the HTTP request. The signature string is generated by using the following formula:

```
SignString = VERB + "\n"
             + CONTENT-MD5 + "\n"
             + CONTENT-TYPE + "\n"
             + DATE + "\n"
             + CanonicalizedLOGHeaders + "\n"
             + CanonicalizedResource
```

   In the preceding formula, `\n` indicates the newline escape character and the plus sign (`+`) indicates the string concatenation operator. The following table describes the other elements.

   Signature string elements

Element	Description	Example
VERB	The method name of the HTTP request.	PUT, GET, and POST
CONTENT-MD5	The MD5 value of the HTTP request body, which must be an uppercase string.	875264590688CA6171F6228AF5BBB3D2
CONTENT-TYPE	The type of the HTTP request body.	application/x-protobuf
DATE	The standard timestamp field of the HTTP request. This field complies with the RFC 1123 time format and uses the GMT standard time.	Mon, 3 Jan 2010 08:33:47 GMT
CanonicalizedLOGHeaders	The string constructed by the custom fields in the HTTP request. The custom fields are prefixed with `x-log` and `x-acs` .	x-log-apiversion:0.6.0\nx-log-bodyrawsize:50\nx-log-signaturemethod:hmac-sha1
CanonicalizedResource	The string constructed by using the HTTP request resources.	/logstores/app_log

   If an HTTP request does not have a body, the CONTENT-MD5 and CONTENT-TYPE fields are empty strings. In this case, the signature string is generated by using the following formula:

```
SignString = VERB + "\n"
             + "\n"
             + "\n"
             + DATE + "\n"
             + CanonicalizedLOGHeaders + "\n"
             + CanonicalizedResource
```

The `x-log-date` custom request field is used in Log Service API operations. For more information, see Common request headers. If you specify this field in a request, the field value replaces the value of the HTTP standard request field Date during signature generation.

The CanonicalizedLOGHeaders string is constructed as follows:

i. Convert the names of all HTTP request fields prefixed with `x-log` and `x-acs` into lowercase letters.
ii. Sort all Log Service custom request fields obtained in the previous step in lexicographical order.
iii. Delete all spaces on either side of a delimiter between the request header and content.
iv. Separate all headers and contents with the `\n` delimiter to obtain the CanonicalizedLOGHeader string.

The CanonicalizedResource string is constructed as follows:

i. Set the CanonicalizedResource string to an empty string ("").
ii. Enter the Log Service resources that you want to access, for example, */logstores/logstorename*. If `logstorename` does not exist, this string is left blank.
iii. If the request contains a query string (`QUERY_STRING`), add a question mark (`?`) and the query string at the end of the CanonicalizedResource string.

In the request, `QUERY_STRING` is the lexicographically sorted string of the request parameters included in the URL. Equal signs (`=`) are used between the names and values of parameters to form a string. The name-value pairs are then sorted in lexicographical order and connected with ampersands (`&`) to form a string. The formula is described as follows:

```
QUERY_STRING = "KEY1=VALUE1" + "&" + "KEY2=VALUE2"
```

3. Generate a digital signature for the request.

   Log Service API operations support only the `hmac-sha1` digital signature algorithm, which is also the default signature algorithm. The signature formula is as follows:

   ```
   Signature = base64(hmac-sha1(UTF8-Encoding-Of(SignString), AccessKeySecret))
   ```

   The HMAC-SHA1 method defined in RFC 2104 is used as the signature method. The AccessKey secret used in the preceding formula must match the AccessKey ID in the final Authorization field. Otherwise, the request cannot be verified by Log Service.

   After the digital signature is generated, use the signature to construct a complete security verification header for the API request. Then, enter the security verification header in the HTTP request and send the request.

Examples

The following two examples demonstrate how to sign an API request. In the examples, the AccessKey pair you use to sign the API request is as follows:

```
AccessKeyId = "<yourAccessKeyId>"
AccessKeySecret = "<yourAccessKeySecret>"
```

- Example 1: you want to send the following GET request to list all Logstores in the ali-test-project project:

  ```
  GET /logstores HTTP 1.1
  Mon, 09 Nov 2015 06:11:16 GMT
  Host: ali-test-project.regionid.example.com
  x-log-apiversion: 0.6.0
  x-log-signaturemethod: hmac-sha1
  ```

  The following signature string is generated for the API request:

  ```
  GET\n\n\nMon, 09 Nov 2015 06:11:16 GMT\nx-log-apiversion:0.6.0\nx-log-signaturemethod:hma
  c-sha1\n/logstores? logstoreName=&offset=0&size=1000
  ```

  The CONTENT-TYPE and CONTENT-MD5 fields are empty because the GET request does not have an HTTP body. If the AccessKey secret is used to generate a signature, the signature is as follows:

  ```
  jEYOTCJs2e88o+y5F4/S5IsnBJQ=
  ```

  The digitally signed HTTP request is as follows:

  ```
  GET /logstores HTTP 1.1
  Mon, 09 Nov 2015 06:11:16 GMT
  Host: ali-test-project.regionid.example.com
  x-log-apiversion: 0.6.0
  x-log-signaturemethod: hmac-sha1
  Authorization: LOG <yourAccessKeyId>:<yourSignature>
  ```

- Example 2: You want to write the following log to the Logstore named test-logstore in the ali-test-project project:

  ```
  topic=""
  time=1447048976
  source="10.10.10.1"
  "TestKey": "TestContent"
  ```

  The following HTTP request must be constructed based on the Log Service API definition:

```
POST /logstores/test-logstore HTTP/1.1
Date: Mon, 09 Nov 2015 06:03:03 GMT
Host: test-project.regionid.example.com
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
Content-MD5: 1DD45FA4A70A9300CC9FE7305AF2C494
Content-Length: 52
x-log-apiversion:0.6.0
x-log-bodyrawsize:50
x-log-compresstype:lz4
x-log-signaturemethod:hmac-sha1
<The log is serialized to byte streams in the ProtoBuffer format.>
```

In this HTTP request, the log is first serialized to byte streams in the ProtoBuffer format and then used as the request body. For more information, see Data encoding. The value of the Content-Type header field value in this request is application/x-protobuf. The value of the Content-MD5 header field is the MD5 value that corresponds to the request body. The signature string of this request is as follows:

```
POST\n1DD45FA4A70A9300CC9FE7305AF2C494\napplication/x-protobuf\nMon, 09 Nov 2015 06:03:03
GMT\nx-log-apiversion:0.6.0\nx-log-bodyrawsize:50\nx-log-compresstype:lz4\nx-log-signatur
emethod:hmac-sha1\n/logstores/test-logstore
```

If the AccessKey secret is used to generate a signature, the signature is as follows:

```
XWLGYHGg2F2hcfxWxMLiNkGki6g=
```

The digitally signed HTTP request is as follows:

```
POST /logstores/test-logstore HTTP/1.1
Date: Mon, 09 Nov 2015 06:03:03 GMT
Host: test-project.regionid.example.com
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
Content-MD5: 1DD45FA4A70A9300CC9FE7305AF2C494
Content-Length: 52
x-log-apiversion:0.6.0
x-log-bodyrawsize:50
x-log-compresstype:lz4
x-log-signaturemethod:hmac-sha1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
<The log is serialized to byte streams in the ProtoBuffer format.>
```

20.1.1.5. Common error codes

When an API request error occurs, Log Service returns an error message, including the HTTP status code and the specific error details in the response body. The error details in the response body are formatted as follows:

```
{
"errorCode" : <ErrorCode>,
"errorMessage" : <ErrorMessage>
}
```

Some of the error messages that may be returned by Log Service apply to most APIs and are defined as common error codes. The other error messages apply only to some APIs and are defined as special error codes. The unique error codes of an API are described in the relevant API reference.

Common error codes

HTTP status code	Error code	Error message	Description
411	MissingContentLength	Content-Length does not exist in http header when it is necessary.	The error message returned because the required Content-Length field does not exist in the request header.
415	InvalidContentType	Content-Type {type} is unsupported.	The error message returned because the specified Content-Type is not supported.
400	MissingContentType	Content-Type does not exist in http header when body is not empty.	The error message returned because the Content-Type header field is not specified when the HTTP request body is not empty.
400	MissingBodyRawSize	x-log-bodyrawsize does not exist in header when it is necessary.	The error message returned because the required x-log-bodyrawsize field does not exist in the request header in the compression scenario.
400	InvalidBodyRawSize	x-log-bodyrawsize is invalid.	The error message returned because the x-log-bodyrawsize value is invalid.
400	InvalidCompressType	x-log-compresstype {type} is unsupported.	The error message returned because the compression type specified in the x-log-compresstype parameter is not supported.
400	MissingHost	Host does not exist in http header.	The error message returned because the Host field does not exist in the HTTP request header.
400	MissingDate	Date does not exist in http header.	The error message returned because the Data field does not exist in the HTTP request header.
400	InvalidDateFormat	Date {date} must follow RFC822.	The error message returned because the value of the Date field in the request header does not comply with the RFC 822 standard.

HTTP status code	Error code	Error message	Description
400	MissingAPIVersion	x-log-apiversion does not exist in http header.	The error message returned because the x-log-apiversion field does not exist in the HTTP request header.
400	InvalidAPIVersion	x-log-apiversion {version} is unsupported.	The error message returned because the value of the x-log-apiversion field in the HTTP request header is not supported.
400	MissAccessKeyId	x-log-accesskeyid does not exist in header.	The error message returned because no AccessKey ID exists in the Authorization header field.
401	Unauthorized	The AccessKeyId is unauthorized.	The error message returned because the specified AccessKey ID is unauthorized.
400	MissingSignatureMethod	x-log-signaturemethod does not exist in http header.	The error message returned because the x-log-signaturemethod field does not exist in the HTTP request header.
400	InvalidSignatureMethod	signature method {method} is unsupported.	The error message returned because the signature method specified in the x-log-signaturemethod header field is not supported.
400	RequestTimeTooSkewed	Request time exceeds server time more than 15 minutes.	The error message returned because the request sending time is more than 15 minutes before or after the current server time.
404	ProjectNotExist	Project {name} does not exist.	The error message returned because the specified project does not exist.
401	SignatureNotMatch	Signature {signature} is not matched.	The error message returned because the digital signature of the request does not match the signature computed in Log Service.
403	WriteQuotaExceed	Write quota is exceeded.	The error message returned because the log write quota is exceeded.
403	ReadQuotaExceed	Read quota is exceeded.	The error message returned because the log read quota is exceeded.

HTTP status code	Error code	Error message	Description
500	InternalServerError	Internal server error message.	The error message returned because an internal server error occurred.
503	ServerBusy	The server is busy, please try again later.	The error message returned because the server is busy. Try again later.

The {...} in the error message indicates the specific error information. For example, {name} in the ProjectNotExist error message is replaced by a specific project name.

20.1.1.6. Project API

20.1.1.6.1. CreateProject

Creates a project.

Request syntax

```
POST / HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: <Content-MD5>
Content-Length: <ContentLength>
Connection: Keep-Alive
{
  "projectName": <ProjectName>,
  "description": <Description>
}
```

Request elements

- Request headers

  The CreateProject API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
projectName	String	Yes	The name of the project.

Parameter	Type	Required	Description
description	String	Yes	The description of the project.

Response elements

- Response headers

  The CreateProject API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	ProjectAlreadyExist	Project {project} already exist
400	ParameterInvalid	The body is not valid json string
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
POST / HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project-test.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 27 May 2018 07:43:26 GMT
Content-Type: application/json
Content-MD5: A7967D81EFF5E3CD447FB6D8DF294E20
Content-Length: 80
Connection: Keep-Alive
{
  "projectName": "my-project-test",
  "description": "Description of my-project-test"
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 27 May 2018 07:43:27 GMT
x-log-requestid: 5B0A619F205DC3F30EDA9322
```

20.1.1.6.2. DeleteProject

Deletes a project.

Request syntax

```
DELETE / HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request elements

- Request headers

  The DeleteProject API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
projectName	String	Yes	The name of the project. The name is a part of the Host parameter in the header.

Response elements

- Response headers

  The DeleteProject API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The project does not exist: {project}
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
DELETE / HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project-test.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 27 May 2018 08:25:04 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 27 May 2018 08:25:04 GMT
x-log-requestid: 5B0A6B60BB6EE39764D458B5
```

20.1.1.6.3. UpdateProject

Modifies a project.

Request syntax

```
PUT / HTTP/1.1
Authorization:  <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent:  <UserAgent>
x-log-apiversion: 0.6.0
Host:  <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date:  <GMT Date>
Content-Type: application/json
Content-MD5:  <Content-MD5>
Content-Length:  <ContentLength>
Connection: Keep-Alive
```

Request elements

- Request headers

  The UpdateProject API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
projectName	String	Yes	The name of the project. The name is a part of the Host parameter in the header.
description	String	Yes	The description of the project. The value is an empty string by default.

Response elements

- Response headers

  The UpdateProject API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The project does not exist: <Project>
400	ParameterInvalid	The body is not valid json string
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
PUT / HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project-test.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 27 May 2018 07:43:26 GMT
Content-Type: application/json
Content-MD5: A7967D81EFF5E3CD447FB6D8DF294E20
Content-Length: 40
Connection: Keep-Alive
{
  "description": "Description of my-project-test"
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 27 May 2018 07:43:27 GMT
x-log-requestid: 5B0A619F205DC3F30EDA9322
```

20.1.1.6.4. GetProject

Queries a project based on the project name.

Request syntax

```
GET / HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request elements

- Request headers

  The GetProject API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
projectName	String	Yes	The name of the project. The name is a part of the Host parameter in the header.

Response elements

- Response headers

  The GetProject API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the response body contains the details of the project. The following table describes the response parameters.

Parameter	Type	Description
createTime	String	The time when the project was created.
description	String	The description of the project.
lastModifyTime	String	The time when the project was last modified.
owner	String	The ID of the account that was used to create the project.
projectName	String	The name of the project.
status	String	The status of the project.
region	String	The region to which the project belongs.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The project does not exist: {project}
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET / HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project-test.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 27 May 2018 08:25:04 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 27 May 2018 08:25:04 GMT
x-log-requestid: 5B0A6B60BB6EE39764D458B5
```

20.1.1.6.5. ListProject

Lists all projects.

Request syntax

```
GET /? offset={offset}&size={size} HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request elements

- Request headers

  The ListProject API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
offset	Integer	No	The start position of the records to return. Default value: 0.

Parameter	Type	Required	Description
size	Integer	No	The maximum number of entries to return on each page. Default and maximum value: 500.

Response elements

- Response headers

  The ListProject API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the response body contains the project list. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned projects on each page.
total	Integer	The total number of ruturned projects.
projects	Array	The list of projects.

The following table describes the elements of the projects parameter.

Element	Type	Description
createTime	String	The time when the project was created.
description	String	The description of the project.
lastModifyTime	String	The time when the project was last modified.
owner	String	The ID of the account that was used to create the project.
projectName	String	The name of the project.
status	String	The status of the project.
region	String	The region to which the project belongs.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET /? offset=0&size=2&projectName= HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 27 May 2018 09:03:33 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Type: application/json
Content-Length: 345
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 27 May 2018 09:03:33 GMT
x-log-requestid: 5B0A7465AAEA20CA70DE3064
{
  "count": 2,
  "total": 11,
  "projects": [
    {
      "projectName": "project1",
      "status": "Normal",
      "owner": "",
      "description": "",
      "region": "cn-shanghai",
      "createTime": "1524222931",
      "lastModifyTime": "1524539357"
    },
    {
      "projectName": "project123456",
      "status": "Normal",
      "owner": "",
      "description": "",
      "region": "cn-shanghai",
      "createTime": "1471963876",
      "lastModifyTime": "1524539357"
    }
  ]
}
```

20.1.1.6.6. GetProjectLogs

Queries logs in a project by using an SQL statement.

Request syntax

The request syntax of the GetProjectLogs API operation is as follows:

```
GET /logs query=SELECT avg(latency) as avg_latency FROM  where __date__ >'2017-09-01 00:00:
00' and __date__ < '2017-09-02 00:00:00'
Authorization: <AuthorizationString>
Date: Wed, 3 Sept. 2014 08:33:46 GMT
Host: big-game.cn-hangzhou.log.aliyuncs.com
x-log-bodyrawsize: 0
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetProjectLogs API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
query	String	Yes	The SQL statement that is used for the query.

Response elements

- Response headers

  For information about common response headers of Log Service API operations, see Common response headers. The following table describes the special response parameters of the GetProjectLogs API operation.

Parameter	Type	Description
x-log-progress	String	The status of the query results. Valid values: Incomplete and Complete.
x-log-count	Integer	The total number of logs in the current query results.
x-log-processed-rows	Integer	The number of rows processed in the query.
x-log-elapsed-millisecond	Integer	The number of milliseconds consumed by the query.

- Response parameters

The response body of the GetProjectLogs API operation is an array. Each element in the array is a log. The following table describes the response parameters.

Parameter	Type	Description
__time__	Integer	The log timestamp. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
__source__	String	The log source, which is specified when logs are written.
[content]	Key-Value pair	The original content of logs.

Additional considerations

- The query statement that is used in this API operation is a standard SQL statement.
- You must specify a project in the domain name of the request.
- You must specify a Logstore in the FROM condition of the query statement. A Logstore can be regarded as a SQL table.
- You must specify a time range in the SQL statement by using the __date__ parameter (timestamp) or __time__ parameter (Unix timestamp).
- If the number of logs in the Logstore significantly changes, Log Service cannot predict how many times this API operation needs to be called to obtain the complete results. In this case, you must check the value of the x-log-progress parameter in the returned results of each request. Based on the value, you can determine whether to repeatedly call this API operation to obtain the complete results.

> **Note** The same number of query compute units (CUs) is consumed each time you call this API operation.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message	Description
400	ParameterInvalid	parameter is invalid	The error message returned because the specified request parameter is invalid.

Example

In this example, the logs with the groupA topic are queried in a Logstore named app_log. The Logstore belongs to a project named big-game in the China (Hangzhou) region. The time range is from 2014-09-01 00:00:00 to 2014-09-01 22:00:00 and the keyword is "error". The query starts from the beginning of the time range. A maximum of 20 logs can be returned.

- Sample requests

```
GET /logs/? query=SELECT * FROM <logStoreName> where __line__ = 'abc' and __date__ >'2017
-09-01 00:00:00' and __date__ < '2017-09-02 00:00:00'&line=20&offset=0 HTTP/1.1
Authorization: <AuthorizationString>
Date: Wed, 3 Sept. 2014 08:33:46 GMT
Host: big-game.cn-hangzhou.log.aliyuncs.com
x-log-bodyrawsize: 0
x-log-apiversion: 0.4.0
x-log-signaturemethod: hmac-sha1
```

- Sample responses

```
HTTP/1.1 200 OK
Content-MD5: 36F9F7F0339BEAF571581AF1B0AAAFB5
Content-Type: application/json
Content-Length: 269
Date: Wed, 3 Sept. 2014 08:33:47 GMT
x-log-requestid: efag01234-12341-15432f
x-log-progress : Complete
x-log-count : 10000
x-log-processed-rows: 10000
x-log-elapsed-millisecond:5
{
    "progress": "Complete",
    "count": 2,
    "logs": [
        {
            "__time__": 1409529660,
            "__source__": "10.237.0.17",
            "Key1": "error",
            "Key2": "Value2"
        },
        {
            "__time__": 1409529680,
            "__source__": "10.237.0.18",
            "Key3": "error",
            "Key4": "Value4"
        }
    ]
}
```

In the sample response, the x-log-progress value is Complete. This indicates that the log query is completed and the returned results are complete. In this query, two logs that meet the query conditions are found. If the x-log-progress value is Incomplete, you must repeat the request to obtain the complete results.

20.1.1.7. Logstore operations

20.1.1.7.1. CreateLogstore

Creates a Logstore.

Request syntax

The request syntax of the CreateLogstore API operation is as follows:

```
POST /logstores HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "logstoreName" : <logStoreName>,
    "ttl": <ttl>,
    "shardCount": <shardCount>,
    "autoSplit": <autoSplit>,
    "maxSplitShard": <maxSplitShard>
}
```

Request elements

- Request headers

  The CreateLogstore API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in a project.
ttl	Integer	Yes	The time to live (TTL) of log data. Unit: days. Valid values: 1 to 3600.
shardCount	Integer	Yes	The number of shards. Valid values: 1 to 100.
enable_tracking	Boolean	No	Specifies whether to enable the WebTracking feature. Default value: false.
autoSplit	Boolean	No	Specifies whether to enable automatic sharding. Default value: false.
maxSplitShard	Integer	No	The maximum number of shards for automatic sharding. Valid values: 1 to 64. Default value: 64. This parameter must be specified if the autoSplit parameter is set to true.

Response elements

- Response headers

  The CreateLogstore API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common request headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	LogstoreAlreadyExist	logstore {logstoreName} already exists
500	InternalServerError	Specified Server Error Message
400	LogstoreInfoInvalid	logstore info is invalid
400	ProjectQuotaExceed	Project Quota Exceed

Examples

- Sample requests

```
POST /logstores HTTP/1.1
Header :
{
x-log-apiversion=0.6.0,
Authorization=LOG <yourAccessKeyId>:<yourSignature>,
Host=ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com,
Date=Wed, 11 Nov 2015 07:35:00 GMT,
Content-Length=55,
x-log-signaturemethod=hmac-sha1,
Content-MD5=7EF43D0B8F4A807B95E775048C911C72,
User-Agent=sls-java-sdk-v-0.6.0,
Content-Type=application/json
}
Body :
{
    "logstoreName": "test-logstore",
    "ttl": 1,
    "shardCount": 2,
    "autoSplit": true,
    "maxSplitShard": 64
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header:
{
Date=Wed, 11 Nov 2015 07:35:00 GMT,
Content-Length=0,
x-log-requestid=5642EFA499248C827B012B39,
Connection=close,
Server=nginx/1.6.1
}
```

20.1.1.7.2. DeleteLogstore

Deletes a Logstore, including all shards and indexes of the Logstore.

Request syntax

```
DELETE /logstores/{logstoreName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request parameters

- Request headers

  The DeleteLogstore API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in a project.

Response parameters

- Response headers

  The DeleteLogstore API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
DELETE /logstores/test_logstore HTTP/1.1
Header :
{
x-log-apiversion=0.6.0,
Authorization=LOG <yourAccessKeyId>:<yourSignature>,
Host=ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com,
Date=Wed, 11 Nov 2015 08:09:38 GMT,
Content-Length=0,
x-log-signaturemethod=hmac-sha1,
User-Agent=sls-java-sdk-v-0.6.0,
Content-Type=application/json
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header:
{
Date=Wed, 11 Nov 2015 08:09:39 GMT,
Content-Length=0,
x-log-requestid=5642F7C399248C817B013A07,
Connection=close,
Server=nginx/1.6.1
}
```

20.1.1.7.3. UpdateLogstore

Updates the attributes of a Logstore. Only the time to live (TTL) and shard attributes can be updated.

Request syntax

```
PUT /logstores/{logstoreName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "logstoreName": <logstoreName>,
    "ttl": <ttl>,
    "shardCount": <shardCount>,
    "autoSplit": <autoSplit>,
    "maxSplitShard": <maxSplitShard>
}
```

Request elements

- Request headers

  The UpdateLogstore API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in a project.
ttl	Integer	Yes	The time to live (TTL) of log data. Unit: days. Valid values: 1 to 3600.
shardCount	Integer	Yes	The number of shards. After the attributes of a Logstore are updated, the number of shards is unchanged. You can only call the SplitShard or MergeShards operation to change the number of shards.
enable_tracking	Boolean	No	Specifies whether to enable the WebTracking feature.
autoSplit	Boolean	No	Specifies whether to enable automatic sharding.

Parameter	Type	Required	Description
maxSplitShard	Integer	No	The maximum number of shards for automatic sharding. Valid values: 1 to 64. This parameter must be specified if the autoSplit parameter is set to true.

Response elements

- Response headers

  The UpdateLogstore API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	Project {ProjectName} does not exist
404	LogStoreNotExist	logstore {logstoreName} does not exist
400	LogStoreAlreadyExist	logstore {logstoreName} already exists
500	InternalServerError	Specified Server Error Message
400	ParameterInvalid	invalid shard count,you can only modify shardCount by split& merge shard

Additional considerations

You can modify the number of shards be only calling the SplitShard or MergeShards API operation.

Examples

- Sample requests

```
PUT /logstores/test-logstore HTTP/1.1
Header:
{
x-log-apiversion=0.6.0,
Authorization=LOG <yourAccessKeyId>:<yourSignature>,
Host=ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com,
Date=Wed, 11 Nov 2015 08:28:19 GMT,
Content-Length=55,
x-log-signaturemethod=hmac-sha1,
Content-MD5=757C60FC41CC7D3F60B88E0D916D051E,
User-Agent=sls-java-sdk-v-0.6.0,
Content-Type=application/json
}
Body :
{
    "logstoreName": "test-logstore",
    "ttl": 1,
    "shardCount": 2,
    "autoSplit": true,
    "maxSplitShard": 64
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header:
{
Date=Wed, 11 Nov 2015 08:28:20 GMT,
Content-Length=0,
x-log-requestid=5642FC2399248C8F7B0145FD,
Connection=close,
Server=nginx/1.6.1
}
```

20.1.1.7.4. GetLogstore

Queries the attributes of a Logstore.

Request syntax

```
GET /logstores/{logstoreName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetLogstore API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in a project.

Response elements

- Response headers

  The GetLogstore API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

```
{
    "logstoreName" : <logstoreName>,
    "ttl": <ttl>,
    "shardCount": <shardCount>,
    "createTime": <createTime>,
    "lastModifyTime": <lastModifyTime>
}
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	Project {ProjectName} does not exist
404	LogstoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET /logstores/test-logstore HTTP/1.1
Header :
{
x-log-apiversion=0.6.0,
Authorization=LOG <yourAccessKeyId>:<yourSignature>,
Host=ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com,
Date=Wed, 11 Nov 2015 07:53:29 GMT,
Content-Length=0,
x-log-signaturemethod=hmac-sha1,
User-Agent=sls-java-sdk-v-0.6.0,
Content-Type=application/json
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
Date=Wed, 11 Nov 2015 07:53:30 GMT,
Content-Length=107,
x-log-requestid=5642F3FA99248C817B01352D,
Connection=close,
Content-Type=application/json,
Server=nginx/1.6.1
}
Body :
{
    "logstoreName": test-logstore,
    "ttl": 1,
    "shardCount": 2,
    "createTime": 1447833064,
    "lastModifyTime": 1447833064
}
```

20.1.1.7.5. ListLogstore

Lists all Logstores in a specified project.

Request syntax

```
GET /logstores HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The ListLogstore API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
offset	Integer	No	The start position of the records to return. Default value: 0.
size	Integer	No	The maximum number of entries to return on each page. Default and maximum value: 500.

Parameter	Type	Required	Description
logstoreName	String	Yes	The Logstore name that is used as a filtering condition. Fuzzy match is used.

Response elements

- Response headers

  The ListLogstore API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After a ListLogstore request succeeds, the response body contains a list of all Logstores in the specified project. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned Logstores.
total	Integer	The total number of Logstores.
logstores	String array	The name list of returned Logstores.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	Project {ProjectName} does not exist
500	InternalServerError	Specified Server Error Message
400	ParameterInvalid	Invalid parameter size, (0.6.0]
400	InvalidLogStoreQuery	logstore Query is invalid

Examples

- Sample requests

```
GET /logstores HTTP/1.1
Header:
{
x-log-apiversion=0.6.0,
Authorization=LOG <yourAccessKeyId>:<yourSignature>,
Host=ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com,
Date=Wed, 11 Nov 2015 08:09:39 GMT,
Content-Length=0,
x-log-signaturemethod=hmac-sha1,
User-Agent=sls-java-sdk-v-0.6.0,
Content-Type=application/json
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header:
{
Date=Wed, 11 Nov 2015 08:09:39 GMT,
Content-Length=52,
x-log-requestid=5642F7C399248C8D7B01342F,
Connection=close,
Content-Type=application/json,
Server=nginx/1.6.1
}
Body:
{
"count":1,
"logstores":["test-logstore"],
"total":1
}
```

20.1.1.7.6. ListShards

Lists all available shards in a Logstore.

Request syntax

```
GET /logstores/<logstorename>/shards HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The ListShards API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.

Response elements

- Response headers

  The ListShards API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response elements

  The response is an array that consists of shards.

```
[
    {
        "shardID": 0,
        "status": "readwrite",
        "inclusiveBeginKey": "00000000000000000000000000000000",
        "exclusiveEndKey": "80000000000000000000000000000000",
        "createTime": 1453949705
    },
    {
        ...
    },
    {
        ...
    }
]
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message
400	LogStoreWithoutShard	logstore has no shard

Note The {logstoreName} variable in the preceding error message is replaced with a specific Logstore name.

Examples

- Sample requests

```
GET /logstores/sls-test-logstore/shards
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header:
{
    "content-length": "57",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "content-type": "application/json",
    "x-log-requestid": "56440A2F99248C050600C74C"
}
Body :
[
    {
        "shardID": 1,
        "status": "readwrite",
        "inclusiveBeginKey": "00000000000000000000000000000000",
        "exclusiveEndKey": "80000000000000000000000000000000",
        "createTime": 1453949705
    },
    {
        "shardID": 2,
        "status": "readwrite",
        "inclusiveBeginKey": "80000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    },
    {
        "shardID": 0,
        "status": "readonly",
        "inclusiveBeginKey": "00000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    }
]
```

20.1.1.7.7. SplitShard

Splits a specified shard in the read/write state.

Request syntax

```
POST /logstores/<logstorename>/shards/<shardid>? action=split&key=<splitkey> HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The SplitShard API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
shardid	Integer	Yes	The ID of the shard.
splitkey	String	Yes	The location where the shard is split.

Response elements

- Response headers

  Content-Type: application/json

  The SplitShard API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The response is an array that consists of three shards. The first shard is the original shard. The second and third shards are the new shards that are created by splitting the original shard.

```
[
    {
        "shardID": 33,
        "status": "readonly",
        "inclusiveBeginKey": "ee000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    },
    {
        "shardID": 163,
        "status": "readwrite",
        "inclusiveBeginKey": "ee000000000000000000000000000000",
        "exclusiveEndKey": "ef000000000000000000000000000000",
        "createTime": 1453949705
    },
    {
        "shardID": 164,
        "status": "readwrite",
        "inclusiveBeginKey": "ef000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    }
]
```


Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	logstore {logstoreName} does not exist
400	ParameterInvalid	invalid shard id
400	ParameterInvalid	invalid mid hash
500	InternalServerError	Specified Server Error Message
400	LogStoreWithoutShard	logstore has no shard

Note The {logstoreName} variable in the preceding error message is replaced with a specific Logstore name.

Examples

- Sample requests

```
POST /logstores/logstorename/shards/33? action=split&key=ef00000000000000000000000000000
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou.sls.aliyuncs.com",
    "Date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header:
{
    "content-length": "57",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "content-type": "application/json",
    "x-log-requestid": "56440A2F99248C050600C74C"
}
Body :
[
    {
        "shardID": 33,
        "status": "readonly",
        "inclusiveBeginKey": "ee000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    },
    {
        "shardID": 163,
        "status": "readwrite",
        "inclusiveBeginKey": "ee000000000000000000000000000000",
        "exclusiveEndKey": "ef000000000000000000000000000000",
        "createTime": 1453949705
    },
    {
        "shardID": 164,
        "status": "readwrite",
        "inclusiveBeginKey": "ef000000000000000000000000000000",
        "exclusiveEndKey": "ffffffffffffffffffffffffffffffff",
        "createTime": 1453949705
    }
]
```

20.1.1.7.8. MergeShards

Merges two adjacent shards that are in the read/write state. If you specify the ID of a shard in the request, Log Service automatically finds the adjacent shard.

Request syntax

```
POST /logstores/<logstorename>/shards/<shardid>? action=merge HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The MergeShards API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
shardid	Integer	Yes	The ID of the shard.

Response elements

- Response headers

  Content-Type: application/json

  The MergeShards API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  An array that consists of three shards is returned. The first shard is the merged shard. The other two shards are the original shards.

```
[
    {
        'shardID': 167,
        'status': 'readwrite',
        'inclusiveBeginKey': 'e00000000000000000000000000000',
        'createTime': 1453953105,
        'exclusiveEndKey': 'ffffffffffffffffffffffffffffff'
    },
    {
        'shardID': 30,
        'status': 'readonly',
        'inclusiveBeginKey': 'e00000000000000000000000000000',
        'createTime': 0,
        'exclusiveEndKey':
        'e70000000000000000000000000000'
    },
    {
        'shardID': 166,
        'status': 'readonly',
        'inclusiveBeginKey': 'e70000000000000000000000000000',
        'createTime': 1453953073,
        'exclusiveEndKey': 'ffffffffffffffffffffffffffffff'
    }
]
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	logstore {logstoreName} does not exist
400	ParameterInvalid	invalid shard id
400	ParameterInvalid	can not merge the last shard
500	InternalServerError	Specified Server Error Message
400	LogStoreWithoutShard	logstore has no shard

Note The {Name} variable in the preceding error message is replaced with a specific Logstore name.

Examples

- Sample requests

```
POST /logstores/logstorename/shards/30? action=merge
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou.sls.aliyuncs.com",
    "Date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

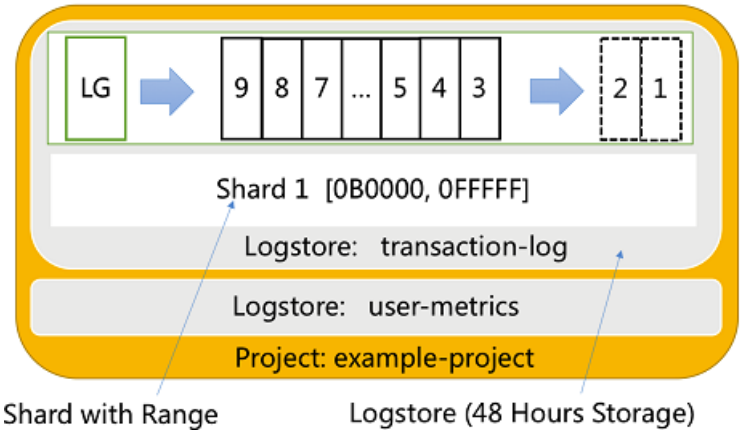
- Sample responses

```
Header:
{
    "content-length": "57",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Thu, 12 Nov 2015 03:40:31 GMT",
    "content-type": "application/json",
    "x-log-requestid": "56440A2F99248C050600C74C"
}
Body :
[
    {
        'shardID': 167,
        'status': 'readwrite',
        'inclusiveBeginKey': 'e00000000000000000000000000000000',
        'createTime': 1453953105,
        'exclusiveEndKey': 'ffffffffffffffffffffffffffffffff'
    },
    {
        'shardID': 30,
        'status': 'readonly',
        'inclusiveBeginKey': 'e00000000000000000000000000000000',
        'createTime': 0,
        'exclusiveEndKey':
        'e70000000000000000000000000000000'
    },
    {
        'shardID': 166,
        'status': 'readonly',
        'inclusiveBeginKey': 'e70000000000000000000000000000000',
        'createTime': 1453953073,
        'exclusiveEndKey': 'ffffffffffffffffffffffffffffffff'
    }
]
```

20.1.1.7.9. GetCursor

Queries a cursor based on a point in time.

You can use a cursor to obtain the location of a specific log. The following figure shows the relationships among a cursor, project, Logstore, and shard.



- Each project has multiple Logstores.
- Each Logstore has multiple shards.
- You can use a cursor to obtain the location of a specific log.

Request syntax

The request syntax of the GetCursor API operation is as follows:

```
GET /logstores/ay42/shards/2? type=cursor&from=1402341900 HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
```

Request elements

- Request headers

  The GetCursor API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
shard	String	Yes	The name of the shard.
type	String	Yes	This parameter must be set to cursor.
from	String	Yes	The time that is used to query a cursor. Set the value to a Unix timestamp or a string such as `begin` or `end`.

You can use the from parameter to locate the logs within the lifecycle of a shard in a Logstore. If the lifecycle of the Logstore is `[begin_time, end_time)` and the from parameter is set to from_time, the response is returned as follows:

- `from_time ≤ begin_time or from_time = "begin"` : A cursor is returned. The cursor corresponds to the log whose timestamp is begin_time.
- `from_time ≥ end_time or from_time = "end"` : A cursor is returned. The cursor corresponds to the next log to be written at the current time (No data exists in the current cursor location).
- `from_time > begin_time and from_time < end_time` : A cursor is returned. The cursor corresponds to the first packet that Log Service receives later than or at from_time.

> **Note** The lifecycle of a Logstore is specified by the ttl parameter of the Logstore. For example, the current time is 2018-11-11 09:00:00 and the ttl parameter is set to 5. The time interval of consumable data in each shard is `[2018-11-05 09:00:00, 2018-11-11 09:00:00)`. The server time is used.

Response elements

- Response headers

  The GetCursor API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

```
{
    "cursor": "MTQ0NzI5OTYwNjg5NjYzMjM1Ng=="
}
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	Logstore {Name} does not exist
400	ParameterInvalid	Parameter From is not valid
400	ShardNotExist	Shard {ShardID} does not exist
500	InternalServerError	Specified Server Error Message
400	LogStoreWithoutShard	the logstore has no shard

Examples

- Sample requests

```
GET /logstores/sls-test-logstore/shards/0? type=cursor&from=begin
Header:
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Thu, 12 Nov 2015 03:56:57 GMT",
    "x-log-apiversion": "0.6.0",
    "Content-Type": "application/json",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header:
{
    "content-length": "41",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Thu, 12 Nov 2015 03:56:57 GMT",
    "content-type": "application/json",
    "x-log-requestid": "56440E0999248C070600C6AA"
}
Body:
{
    "cursor": "MTQ0NzI5OTYwNjg5NjYzMjM1Ng=="
}
```

20.1.1.7.10. GetCursorTime

Queries the server time based on the cursor.

Request syntax

```
GET /logstores/{logstoreName}/shards/{shard}? cursor={cursor}&type=cursor_time HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetCursorTime API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
shard	Integer	Yes	The ID of the shard.
cursor	String	Yes	The cursor that is used to obtain the corresponding timestamp.
type	String	Yes	Set the value to cursor_time.

Response elements

- Response headers

  The GetCursorTime API does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

```
{
   "cursor_time": 1554260243
}
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	Logstore {Name} does not exist
400	ParameterInvalid	Parameter From is not valid
400	ShardNotExist	Shard {ShardID} does not exist
500	InternalServerError	Specified Server Error Message
400	LogStoreWithoutShard	the logstore has no shard

Examples

- Sample requests

```
GET /logstores/internal-operation_log/shards/0? cursor=MTU0NzQ3MDY4MjM3NjUxMzQ0Ng%3D%3D&t
ype=cursor_time HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-hangzhou.sls.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Wed, 03 Apr 2019 02:57:23 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx
Content-Type: application/json
Content-Length: 26
Connection: close
Access-Control-Allow-Origin: *
Date: Wed, 03 Apr 2019 02:57:23 GMT
x-log-requestid: 5CA42113D2F00378A74B9051
{
  "cursor_time": 1554260243
}
```

20.1.1.7.11. PullLogs

Pulls logs from a Logstore. You must specify a shard when you call this API operation.

Only Protocol Buffer log data can be pulled from a Logstore. For more information, see Protocol Buffer format.

In scenarios that involve the Storm architecture, election and collaborative consumption can be performed through LoghubClientLib.

Request syntax

```
GET /logstores/ay42/shards/0? type=logs&cursor=MTQ0NzMyOTQwMTEwMjEzMDkwNA==&count=100 HTTP/
1.1
Accept: application/x-protobuf
Accept-Encoding: lz4
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request parameters

- Request header fields
  - Accept: application/x-protobuf
  - Accept-Encoding: lz4, deflate, or “”

  - For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
type	String	Yes	Set the value to logs.
cursor	String	Yes	The cursor that identifies where data reading starts. This indicates the start point.
count	Integer	Yes	The number of returned log groups. Valid values: 1 to 1000.

Response parameters

- Response header fields
  - x-log-cursor: The next cursor of the currently read data.
  - x-log-count: The number of currently returned logs.
  - For information about common response headers of Log Service API operations, see Common response headers.
- Response elements

  Serialized data is returned in the Protocol Buffer format. The data may be compressed.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	LogStoreNotExist	Logstore {Name} does not exist
400	ParameterInvalid	Parameter Cursor is not valid
400	ParameterInvalid	ParameterCount should be in [0-1000]
400	ShardNotExist	Shard {ShardID} does not exist
400	InvalidCursor	this cursor is invalid
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
Read data from shard 0.
GET /logstores/sls-test-logstore/shards/0? cursor=MTQ0NzMyOTQwMTEwMjEzMDkwNA==&count=1000
&type=log
Header:
{
    "Authorization"="LOG <yourAccessKeyId>:<yourSignature>",
    "x-log-bodyrawsize"=0,
    "User-Agent" : "sls-java-sdk-v-0.6.0",
    "x-log-apiversion" : "0.6.0",
    "Host" : "ali-test-project.cn-hangzhou-failover-intranet.sls.aliyuncs.com",
    "x-log-signaturemethod" : "hmac-sha1",
    "Accept-Encoding" : "lz4",
    "Content-Length": 0,
    "Date" : "Thu, 12 Nov 2015 12:03:17 GMT",
    "Content-Type" : "application/x-protobuf",
    "accept" : "application/x-protobuf"
}
```

- Sample responses

```
Header:
{
    "x-log-count" : "1000",
    "x-log-requestid" : "56447FB20351626D7C000874",
    "Server" : "nginx/1.6.1",
    "x-log-bodyrawsize" : "34121",
    "Connection" : "close",
    "Content-Length" : "4231",
    "x-log-cursor" : "MTQ0NzMyOTQwMTEwMjEzMDkwNA==",
    "Date" : "Thu, 12 Nov 2015 12:01:54 GMT",
    "x-log-compresstype" : "lz4",
    "Content-Type" : "application/x-protobuf"
}
Body:
The <log group list in the Protocol Buffer format> after the compression.
```

- Page flip

  To flip the page (get the next token) without returning data, you can send HTTP HEAD requests.

20.1.1.7.12. PostLog

Writes log data to a Logstore.

Only Protocol Buffer log data can be written to a Logstore. For more information, see Protocol Buffer format.

> **Note** Log data is written in the form of log groups.

Log data can be written to a Logstore in either of the following modes:

- LoadBalance: In this mode, Log Service automatically writes logs to all writable shards in a Logstore. This mode provides high availability (SLA: 99.95%) in data writes. It applies to scenarios where data writes and reads are irrelevant to shards, for example, where ordering is not considered.

- KeyHash: The key field is added to the URL parameter. This determines which shard to store the log data. This field is optional. If you do not specify this field, Log Service automatically writes log data in the LoadBalance mode. For example, Log Service can hash an instance as a producer to a fixed shard based on the name of the instance. This ensures that data is written and consumed by using a strict order in the shard. The key is included only in the MD5 value range of a shard at a time even when the shard is merged or split. For more information, see Shards.

Protocol Buffer log data

The following table describes the fields of Protocol Buffer log data. For more information, see Data model and Data encoding.

- Log

Field	Type	Required	Description
Time	Integer	Yes	The time when the log was generated.
Contents	List	Yes, this field must contain at least one element.	The list of log fields. For information about the field elements, see the Content field table.

- Content

Field	Type	Required	Description
Key	String	Yes	The name of the custom key.
Value	String	Yes	The value of the custom key.

- LogTag

Field	Type	Required	Description
Key	String	Yes	The name of the custom key.
Value	String	Yes	The value of the custom key.

- LogGroup

Field	Type	Required	Description
Logs	List	Yes	A list of logs. For information about the field elements, see the Log field table.

Field	Type	Required	Description
Topic	String	Yes	A user-defined field in a log. This field identifies a group of logs.
Source	String	Yes	The source of the log, for example, the IP address of the machine where the log is generated.
LogTags	List	Yes	The list of log tags. For information about the field elements, see the LogTags field table.

Request syntax

- LoadBalance mode

```
POST /logstores/<logstorename>/shards/lb HTTP/1.1
Authorization: <AuthorizationString>
Content-Type: application/x-protobuf
Content-Length: <Content Length>
Content-MD5: <Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-bodyrawsize: <BodyRawSize>
x-log-compresstype: lz4
x-log-signaturemethod: hmac-sha1
<Compressed log data in the Protocol Buffer format>
```

- KeyHash mode

```
POST /logstores/<logstorename>/shards/route? key=14d2f850ad6ea48e46e4547edbbb27e0
Authorization: <AuthorizationString>
Content-Type: application/x-protobuf
Content-Length: <Content Length>
Content-MD5: <Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-bodyrawsize: <BodyRawSize>
x-log-compresstype: lz4
x-log-signaturemethod: hmac-sha1
<Compressed log data in the Protocol Buffer format>
```

Request elements

- Request headers

For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstorename	String	Yes	The name of the Logstore to which logs are written.

Response elements

- Response headers

  The PutLogs API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  No response element is returned after the request succeeds.

Additional considerations

- You can call the PutLogs API operation to write a maximum of 3 MB log group data or 4,096 logs each time. The size of values in each log cannot be greater than 1 MB. If these limits are exceeded, the request will fail and no log data will be written.
- Log Service checks the format of log data written by the PutLogs API operation. If a log does not meet the format requirements, the request will fail and no log data will be written.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message	Description
400	PostBodyInvalid	Protobuffer content cannot be parsed.	The error message returned because the logs in the Protocol Buffer format cannot be parsed.
400	InvalidTimestamp	Invalid timestamps are in logs.	The error message returned because the logs contain invalid timestamps.
400	InvalidEncoding	Non-UTF8 characters are in logs.	The error message returned because the logs contain non-UTF-8 characters.
400	InvalidKey	Invalid keys are in logs.	The error message returned because the logs contain invalid keys.

HTTP status code	Error code	Error message	Description
400	PostBodyTooLarge	Logs must be less than or equal to 3 MB and 4096 entries.	The error message returned because the size of logs is greater than 3 MB or the number of logs exceeds 4,096.
400	PostBodyUncompressError	Failed to decompress logs.	The error message returned because the logs fail to be decompressed.
499	PostBodyInvalid	The post data time is out of range	The error message returned because the log timestamp is not within the valid range: [-7 × 24 hours, + 15 minutes].
404	LogStoreNotExist	logstore {Name} does not exist.	The error message returned because the specified Logstore does not exist.

Note The {Name} variable in the preceding error message is replaced with a specific Logstore name.

Examples

- Sample requests

```
POST /logstores/sls-test-logstore
{
    "Content-Length": 118,
    "Content-Type":"application/x-protobuf",
    "x-log-bodyrawsize":1356,
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Content-MD5":"6554BD042149C844761C2C094A8FECCE",
    "Date":"Thu, 12 Nov 2015 06:54:26 GMT",
    "x-log-apiversion": "0.6.0",
    "x-log-compresstype":"lz4"
    "x-log-signaturemethod": "hmac-sha1",
    "Authorization":"LOG <yourAccessKeyId>:<yourSignature>"
}
<Binary data obtained after logs in the Protocol Buffer format are compressed with the LZ4 algorithm>
```

- Sample responses

```
Header
{
    "date": "Thu, 12 Nov 2015 06:53:03 GMT",
    "connection": "close",
    "x-log-requestid": "5644160399248C060600D216",
    "content-length": "0",
    "server": "nginx/1.6.1"
}
```

20.1.1.7.13. GetLogs

Queries logs in a Logstore of a specified project, or queries the logs that meet the specified conditions.

After a log is written to a Logstore, you can call the GetHistograms and GetLogs API operations to query the log. However, the query has a latency, which varies with the type of the log. Based on the log timestamp, Log Service classifies logs into the following two types:

- Real-time data: For this type, the difference between the time in a log and the current time on the server is (-180 seconds, 900 seconds]. For example, if the log time is UTC 2014-09-25 12:03:00 and the server receives the log at UTC 2014-09-25 12:05:00, the log is regarded as real-time data.
- Historical data: For this type, the difference between the time in a log and the current time on the server is [-7 × 86,400 seconds, -180 seconds). For example, if the log time is UTC 2014-09-25 12:00:00 and the server receives the log at UTC 2014-09-25 12:05:00, the log is regarded as historical data.

Real-time data can be queried with a maximum latency of three seconds after being written to a Logstore. In most cases, 99.9% of real-time data can be queried in one second.

Request syntax

The request syntax of the GetLogs API operation is as follows:

```
GET /logstores/<logstorename>? type=log&topic=<logtopic>&from=<starttime>&to=<endtime>&quer
y=<querystring>&line=<linenum>&offset=<startindex>&reverse=<ture|false> HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-bodyrawsize: 0
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetLogs API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstorename	String	Yes	The name of the Logstore whose logs you want to query.

Parameter	Type	Required	Description
type	String	Yes	The type of data in the Logstore. The value of this parameter must be log.
from	Integer	Yes	The start time of the time range during which the logs to be queried are generated. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
to	Integer	Yes	The end time of the time range during which the logs to be queried are generated. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
topic	String	No	The topic of the logs to be queried.
query	String	No	The query statement. see *User Guide.* The path is **Query and analysis > Query syntax and functions > Query syntax**.
line	Integer	No	The maximum number of logs to return for the request. Value range: 0 to 100. Default value: 100.
offset	Integer	No	The start point of the returned log for the request. Valid values: 0 and positive integers. Default value: 0.
reverse	Boolean	No	Specifies whether to return logs in reverse order based on the log timestamp, accurate to seconds. If the value is true, logs are returned in reverse order. If the value is false, logs are returned in regular order. Default value: false.

Response elements

- Response headers

  The GetLogs API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

  The response header contains a special element that indicates whether the returned results of the request are complete. The following table describes the response parameters.

Parameter	Type	Description

Parameter	Type	Description
x-log-progress	String	The status of the query results. Valid values: Incomplete and Complete.
x-log-count	Integer	The total number of logs in the current query results.

- Response parameters

  After a GetLogs request succeeds, the response body contains log data hits in the query. If a large number of logs (measured in TBs) are queried, the response of the GetLogs operation may be incomplete. The response body of the GetLogs operation is an array. Each element in the array is a log. The following table describes the elements in the array.

Element	Type	Description
__time__	Integer	The log timestamp. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
__Source __	String	The log source, which is specified when logs are written.
[content]	Key-value pair	The original content of logs.

Additional considerations

- The time range defined by the from and to request parameters is left closed and right open. This means that the time range includes the start time, but does not include the end time. If the from and to parameters for a time range have the same value, the time range is invalid and the function will return an error.
- If the number of logs in the Logstore significantly changes, Log Service cannot predict how many times this API operation needs to be called to obtain the complete results. In this case, you must check the value of the x-log-progress parameter in the returned results of each request. Based on the value, you can decide whether to repeatedly call this API operation to obtain the complete results.

  > **Note** The same number of query compute units (CUs) is consumed each time you call this API operation.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message	Description
404	LogStoreNotExist	logstore {Name} does not exist	The error message returned because the specified Logstore does not exist.

HTTP status code	Error code	Error message	Description
400	InvalidTimeRange	request time range is invalid	The error message returned because the specified time interval of the request is invalid.
400	InvalidQueryString	query string is invalid	The error message returned because the specified query string of the request is invalid.
400	InvalidOffset	offset is invalid	The error message returned because the specified offset parameter of the request is invalid.
400	InvalidLine	line is invalid	The error message returned because the specified line parameter of the request is invalid.
400	InvalidReverse	Reverse value is invalid	The error message returned because the specified reverse parameter is invalid.
400	IndexConfigNotExist	logstore without index config	The error message returned because the index feature has not been enabled for the Logstore.

Note The {name} variable in the preceding error message is replaced with a specific Logstore name.

Example

In this example, the logs with the groupA topic are queried in a Logstore named app_log. The Logstore belongs to a project named big-game in the China (Hangzhou) region. The time range is from 2014-09-01 00:00:00 to 2014-09-01 22:00:00 and the keyword is "error". The query starts from the beginning of the time range. A maximum of 20 logs can be returned.

- Sample requests

```
GET /logstores/app_log?  type=log&topic=groupA&from=1409529600&to=1409608800&query=error&
line=20&offset=0 HTTP/1.1
Authorization: <AuthorizationString>
Date: Wed, 3 Sept. 2014 08:33:46 GMT
Host: big-game.cn-hangzhou.log.aliyuncs.com
x-log-bodyrawsize: 0
x-log-apiversion: 0.4.0
x-log-signaturemethod: hmac-sha1
```

- Sample responses

```
HTTP/1.1 200 OK
Content-MD5: 36F9F7F0339BEAF571581AF1B0AAAFB5
Content-Type: application/json
Content-Length: 269
Date: Wed, 3 Sept. 2014 08:33:47 GMT
x-log-requestid: efag01234-12341-15432f
x-log-progress : Complete
x-log-count : 10000
x-log-processed-rows: 10000
x-log-elapsed-millisecond:5
{
    "progress": "Complete",
    "count": 2,
    "logs": [
        {
            "__time__": 1409529660,
            "__source__": "10.237.0.17",
            "Key1": "error",
            "Key2": "Value2"
        },
        {
            "__time__": 1409529680,
            "__source__": "10.237.0.18",
            "Key3": "error",
            "Key4": "Value4"
        }
    ]
}
```

In the sample response, the x-log-progress value is Complete. This indicates that the log query is completed and the returned results are complete. Two logs meet the specified query conditions and are displayed as the value of the logs parameter. If the x-log-progress value is Incomplete, you must repeat the request to obtain the complete results.

20.1.1.7.14. GetHistograms

Queries the distribution of logs in a Logstore within a specified project, or queries the distribution of logs that meet the specified conditions.

After a log is written to a Logstore, you can call the GetHistograms and GetLogs API operations to query the log. However, the query has a latency, which varies with the type of the log. Based on the log timestamp, Log Service classifies logs into the following two types:

- Real-time data: For this type, the difference between the time in a log and the current time on the server is within the interval (-180 seconds, 900 seconds]. For example, if the log time is UTC 2014-09-25 12:03:00 and the server receives the log at UTC 2014-09-25 12:05:00, the log is regarded as real-time data. The latency for real-time data is three seconds, from the time when the data is written to the Logstore to the time when the data can be queried.
- Historical data: For this type, the difference between the time in a log and the current time on the server is [-7 × 86,400 seconds, -180 seconds). For example, if the log time is UTC 2014-09-25 12:00:00 and the server receives the log at UTC 2014-09-25 12:05:00, the log is regarded as historical data.

Request syntax

The request syntax of the GetHistograms API operation is as follows:

```
GET /logstores/<logstorename>? type=histogram&topic=<logtopic>&from=<starttime>&to=<endtime
>&query=<querystring> HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-bodyrawsize: 0
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetHistograms API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstorename	String	Yes	The name of the Logstore whose logs you want to query.
type	String	Yes	The type of data in the Logstore. The value of this parameter must be histogram.
from	Integer	Yes	The start time of the time range during which the logs to be queried are generated. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
to	Integer	Yes	The end time of the time range during which the logs to be queried are generated. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.

Parameter	Type	Required	Description
topic	String	No	The topic of the logs to be queried.
query	String	No	The query statement. For more information about the query syntax, see *User Guide*. The path is **Query and analysis > Query syntax and functions > Query syntax**.

Response elements

- Response headers

  The GetHistograms API does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After a GetHistograms request succeeds, the response body contains the distribution of the log hits returned by the query along the timeline. The response results evenly divide the time range into several subintervals and returns the number of log hits for each subinterval. The following table describes the response parameters.

Parameter	Type	Description
progress	String	The status of the query results. Valid values: Incomplete and Complete.
count	Integer	The total number of logs in the current query results.
histograms	Array	The distribution of the current query results in the subintervals. For information about the parameters of each element in the histograms array, see the following table.

This table describes the elements in the histograms parameter.

Element	Type	Description
from	Integer	The start time of the subinterval. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
to	Integer	The end time of the subinterval. This parameter indicates the number of seconds that have elapsed since the Unix epoch 00:00:00 UTC on January 1, 1970.
count	Integer	The number of logs that meet the query conditions for this subinterval in the current query results.

Element	Type	Description
progress	String	Indicates whether the current query results in the subinterval are complete. Valid values: Incomplete and Complete.

Additional considerations

- The preceding time ranges or subintervals are left closed and right open. This means that each time range or subinterval includes the start time, but does not include the end time. If the from and to parameters for a time range have the same value, the time range is invalid and the function will return an error.
- The time range is consistently divided into subintervals in the response. If the time range is unchanged, the subintervals divided in the response is also unchanged.
- If the number of logs in the Logstore significantly changes, Log Service cannot predict how many times this API operation needs to be called to obtain the complete results. In this case, you must check the value of the progress parameter in the returned results of each request. Based on the value, you can decide whether to repeatedly call this API operation to obtain the complete results.

> **Note** The same number of query compute units (CUs) is consumed each time you call this API operation.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message	Description
404	LogStoreNotExist	logstore {Name} does not exist	The error message returned because the specified Logstore does not exist.
400	InvalidTimeRange	request time range is invalid	The error message returned because the specified time interval of the request is invalid.
400	InvalidQueryString	query string is invalid	The message returned when the query string of the request is invalid.

> **Note** The {name} variable in the preceding error message is replaced with a specific Logstore name.

Example

In this example, the distribution of logs with the groupA topic is queried in a Logstore named app_log. The Logstore belongs to a project named big-game in the China (Hangzhou) region. The time range is from 2014-09-01 00:00:00 to 2014-09-01 22:00:00 and the keyword is "error".

- Sample requests

```
GET /logstores/app_log? type=histogram&topic=groupA&from=1409529600&to=1409608800&query=e
rror HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
Date: Wed, 3 Sept. 2014 08:33:46 GMT
Host: big-game.cn-hangzhou.log.aliyuncs.com
x-log-bodyrawsize: 0
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

- Sample responses

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-MD5: E6AD9C21204868C2DE84EE3808AAA8C8
Content-Type: application/json
Date: Wed, 3 Sept. 2014 08:33:47 GMT
Content-Length: 232
x-log-requestid: efag01234-12341-15432f
[
        {
            "from": 1409529600,
            "to": 1409569200,
            "count": 2,
            "progress": "Complete"
        },
        {
            "from": 1409569200,
            "to": 1409608800,
            "count": 1,
            "progress": "Incomplete"
        }
]
```

In this sample response, the server divides the entire histogram into two equal time ranges: [2014-09-01 00:00:00, 2014-09-01 11:00:00) and [2014-09-01 11:00:00, 2014-09-01 22:00:00). The first query returns incomplete data because the amount of data exceeds the limit. The sample response indicates three hits. The results for the time range [2014-09-01 00:00:00 2014-09-01 11:00:00) are complete, including two hits. The results for the other time range are incomplete, including one hit. To obtain the complete results, you must repeatedly call the preceding sample request until the progress value in the response changes to Complete. The sample response is as follows:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-MD5: E6AD9C21204868C2DE84EE3808AAA8C8
Content-Type: application/json
Date: Wed, 3 Sept. 2014 08:33:48 GMT
Content-Length: 232
x-log-requestid: afag01322-1e241-25432e
[
        {
            "from": 1409529600,
            "to": 1409569200,
            "count": 2,
            "progress": "Complete"
        },
        {
            "from": 1409569200,
            "to": 1409608800,
            "count": 2,
            "progress": "complete"
        }
]
```

20.1.1.7.15. UpdateIndex

Updates the indexes of a Logstore.

Request syntax

```
PUT /logstores/<logstoreName>/index HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: <Content-MD5>
Content-Length: <ContentLength>
{
  "line": <full text index>,
  "keys": <key-value index>,
  "ttl": <ttl>
}
```

Request elements

- Request headers

  The UpdateIndex API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
TTL	Integer	No	The time to live (TTL) of the indexes. Valid values: 7, 30, and 90. Default value: 0.
keys	Object	No	The key-value index, where the key refers to the field name and the value refers to the field value.
line	Object	No	The full-text index.

You must specify the keys parameter or the line parameter, or both. The following table describes the full-text index attributes.

Attribute	Type	Required	Description
token	Array	Yes	The list of delimiters.
caseSensitive	Boolean	No	Specifies whether the fields are case-sensitive.
chn	Boolean	No	Specifies whether the fields contain Chinese characters.
include_keys	Array	No	The list of included fields. This parameter and the exclude_keys parameter cannot be specified at the same time.
exclude_keys	Array	No	The list of the excluded fields. This parameter and the include_keys parameter cannot be specified at the same time.

The following table describes the key-value index attributes.

Attribute	Type	Required	Description
type	String	Yes	The type of the fields.

Attribute	Type	Required	Description
alias	String	No	The alias of the field.
chn	Boolean	No	Specifies whether the fields contain Chinese characters. This parameter takes effect only when the type parameter is set to text.
token	Array	Required only when the type parameter is set to text	The list of delimiters. This parameter takes effect only when the type parameter is set to text.
caseSensitive	Boolean	No	Specifies whether the fields are case-sensitive. This parameter takes effect only when the type parameter is set to text.
doc_value	Boolean	No	Specifies whether to enable analytics for the field.

Response elements

- Response headers

  The UpdateIndex API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	ParameterInvalid	log store index is not created
400	ParameterInvalid	key config must has type
400	IndexInfoInvalid	required field token is lacking or of error format
400	IndexInfoInvalid	required fields line/keys are lacking or of error format

HTTP status code	Error code	Error message
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
PUT /logstores/logstore-4/index HTTP/1.1
Header:
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Mon, 07 May 2018 09:47:20 GMT
Content-Type: application/json
Content-MD5: 1860B805A6AA5288B97B32CF3B519112
Content-Length: 316
Connection: Keep-Alive
Body:
{
  "line": {
    "token": [
      ",",
      " ",
      "'",
      "\"",
      ";",
      "=",
      "(",
      ")",
      "[",
      "]",
      "{",
      "}",
      "?",
      "@",
      "&",
      "<",
      ">",
      "/",
      ":",
      "\n",
      "\t",
      "\r"
    ]
```

```
  },
  "keys": {
    "agent": {
      "doc_value": true,
      "caseSensitive": true,
      "alias": "agent_alias",
      "type": "text",
      "token": [
        ",",
        " ",
        "'",
        "\"",
        ";",
        "=",
        "(",
        ")",
        "[",
        "]",
        "{",
        "}",
        "?",
        "@",
        "&",
        "<",
        ">",
        "/",
        ":",
        "\n",
        "\t",
        "\r"
      ]
    }
  },
  "ttl": 90
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Mon, 07 May 2018 09:47:21 GMT
x-log-requestid: 5AF020A98CBAA2EF52AB66C9
```

20.1.1.7.16. CreateIndex

Creates indexes for a specified Logstore.

Request syntax

```
POST /logstores/<logstoreName>/index HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: <x-log-bodyrawsize>
User-Agent: <User-Agent>
x-log-apiversion: <APIVersion>
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: <Content-MD5>
Content-Length: <Content-Length>
{
  "line": <full text index>,
  "keys": <key-value index>
}
```

Request elements

- Request headers

  The CreateIndex API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

-

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
keys	Object	No	The key-value index, where the key refers to the field name and the value refers to the field value.
line	Object	No	The full-text index.

You must specify the keys parameter or the line parameter, or both. The following table describes the full-text index attributes.

Attribute	Type	Required	Description
caseSensitive	Boolean	No	Specifies whether the fields are case-sensitive.
chn	Boolean	No	Specifies whether the fields contain Chinese characters.
token	Array	Yes	The list of delimiters.

Attribute	Type	Required	Description
include_keys	Array	No	The list of included fields. This parameter and the exclude_keys parameter cannot be specified at the same time.
exclude_keys	Array	No	The list of excluded fields. This parameter and the include_keys parameter cannot be specified at the same time.

The following table describes the key-value index attributes.

Attribute	Type	Required	Description
type	String	Yes	The type of the field.
alias	String	No	The alias of the field.
chn	Boolean	No	Specifies whether the fields contain Chinese characters. This parameter takes effect only when the type parameter is set to text.
token	Array	Required only when the type parameter is set to text	The list of delimiters. This parameter takes effect only when the type parameter is set to text.
caseSensitive	Boolean	No	Specifies whether the fields are case-sensitive. This parameter takes effect only when the type parameter is set to text.
doc_value	Boolean	No	Specifies whether to enable analytics for the field.

Response elements

- Response headers

The CreateIndex API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	IndexInfoInvalid	required field token is lacking or of error format
400	IndexAlreadyExist	log store index is already created
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Note The {Project} and {logstoreName} variables in the preceding error messages are replaced with a specific project name and Logstore name.

Examples

Sample requests

```
POST /logstores/my-logstore/index HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Mon, 07 May 2018 09:43:16 GMT
Content-Type: application/json
Content-MD5: 22876515FC311F857AD6C7902F6A0148
Content-Length: 316
Connection: Keep-Alive
{
  "line": {
    "token": [
      ",",
      " ",
      "'",
      "\"",
      ";",
      "=",
      "(
```

```
        "(",
        ")",
        "[",
        "]",
        "{",
        "}",
        "?",
        "@",
        "&",
        "<",
        ">",
        "/",
        ":",
        "\n",
        "\t",
        "\r"
      ]
    },
    "keys": {
      "agent": {
        "doc_value": true,
        "caseSensitive": true,
        "alias": "agent_alias",
        "type": "text",
        "token": [
          ",",
          " ",
          "'",
          "\"",
          ";",
          "=",
          "(",
          ")",
          "[",
          "]",
          "{",
          "}",
          "?",
          "@",
          "&",
          "<",
          ">",
          "/",
          ":",
          "\n",
          "\t",
          "\r"
        ]
      }
    }
  }
```

20.1.1.7.17. DeleteIndex

Deletes the indexes of a Logstore.

Request syntax

```
DELETE /logstores/<logstoreName>/index HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request parameters

- Request headers

  The DeleteIndex API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.

Response elements

- Response headers

  The DeleteIndex API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	ParameterInvalid	log store index not created
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist

HTTP status code	Error code	Error message
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
DELETE /logstores/my-logstore/index HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 06 May 2018 13:22:57 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 06 May 2018 13:22:57 GMT
x-log-requestid: 5AEF01B1A458E41C2F8326A8
```

20.1.1.7.18. GetIndex

Queries the indexes of a Logstore.

Request syntax

The request syntax of the GetIndex API operation is as follows:

```
GET /logstores/<logstoreName>/index HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request elements

- Request headers

The GetIndex API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common response headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.

Response elements

- Response headers

  The GetIndex API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  When the GetIndex API operation succeeds, the response body contains the indexes of the specified project and Logstore. The following table describes the response body parameters.

Parameter	Type	Description
index_mode	String	The type of the indexes.
keys	Dictionary	The key-value index, where the key refers to the field name and the value refers to the field value.
line	object	The full-text index.
storage	String	The storage type. The default value is pg, which refers to PostgreSQL.
ttl	Integer	The time to live (TTL) of the index file. Valid values: 7, 30, and 90. Unit: days.
lastModifyTime	Integer	The time when the indexes were last modified. The value is a Unix timestamp.

- Full-text index attributes

Parameter	Type	Description
caseSensitive	Boolean	Indicates whether the indexes are case sensitive.
chn	Boolean	Indicates whether the fields contain Chinese characters.
token	Array	The list of delimiters.
include_keys	Array	The list of included fields.
exclude_keys	Array	The list of excluded fields.

- Key-value index attributes

Parameter	Type	Description
type	String	Indicates the type of the field.
alias	String	The alias of the field.
chn	Boolean	Indicates whether the fields contain Chinese characters. This parameter takes effect only when the type parameter is set to text.
token	Array	The list of delimiters. This parameter takes effect only when the type parameter is set to text.
caseSensitive	Boolean	Indicates whether the fields are case-sensitive. This parameter takes effect only when the type parameter is set to text.
doc_value	Boolean	Indicates whether to enable analytics for the index.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message	Description
400	IndexConfigNotExist	index config doesn't exist	The error message returned because the specified index does not exist.

HTTP status code	Error code	Error message	Description
404	ProjectNotExist	The Project does not exist : {Project}	The error message returned because the specified project does not exist.
404	LogStoreNotExist	logstore {logstoreName} does not exist	The error message returned because the specified Logstore does not exist.
500	InternalServerError	Specified Server Error Message	The error message returned because an error occurs on the specified server.

Examples

- Sample requests

```
GET /logstores/logstore-4/index HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 06 May 2018 13:08:42 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Type: application/json
Content-Length: 712
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 06 May 2018 13:08:42 GMT
x-log-requestid: 5AEEFE5A8B8AEB5E6C82B395
{
  "index_mode": "v2",
  "keys": {
    "agent": {
      "alias": "",
      "caseSensitive": false,
      "chn": false,
      "doc_value": true,
      "token": [
        ",",
        " ",
        "'",
        "\"",
```

```
        ";",
        "=",
        "(",
        ")",
        "[",
        "]",
        "{",
        "}",
        "?",
        "@",
        "&",
        "<",
        ">",
        "/",
        ":",
        "\n",
        "\t",
        "\r"
      ],
      "type": "text"
    },
    "bytes": {
      "alias": "",
      "doc_value": true,
      "type": "long"
    },
    "remote_ip": {
      "alias": "",
      "caseSensitive": false,
      "chn": false,
      "doc_value": true,
      "token": [
        ",",
        " ",
        "'",
        "\"",
        ";",
        "=",
        "(",
        ")",
        "[",
        "]",
        "{",
        "}",
        "?",
        "@",
        "&",
        "<",
        ">",
        "/",
        ":",
        "\n",
        "\t",
        "\r"
```

```
      ],
      "type": "text"
    },
    "response": {
      "alias": "",
      "doc_value": true,
      "type": "long"
    }
  },
  "line": {
    "caseSensitive": false,
    "chn": false,
    "token": [
      ",",
      " ",
      "'",
      "\"",
      ";",
      "=",
      "(",
      ")",
      "[",
      "]",
      "{",
      "}",
      "?",
      "@",
      "&",
      "<",
      ">",
      "/",
      ":",
      "\n",
      "\t",
      "\r"
    ]
  },
  "storage": "pg",
  "ttl": 30,
  "lastModifyTime": 1524155379
}
```


20.1.1.7.19. PutWebtracking

Merges multiple logs into one log during a single collection request. In the WebTracking mode, only one log can be written to each request. This API operation applies to scenarios where you need to collect a large amount of logs. Before you can call the PutWebtracking API operation, you must turn on the WebTracking switch for the corresponding Logstore. We recommend that you call this API operation to collect logs from web pages or clients.

Request syntax

```
POST {project}.{endpoint}/logstores/{logstoreName}/track HTTP/1.1
x-log-apiversion: 0.6.0
x-log-bodyrawsize: 1234
x-log-compresstype: gzip
{
  "__topic__": "topic",
  "__source__": "source",
  "__logs__": [
    {
      "key1": "value1",
      "key2": "value2"
    },
    {
      "key1": "value1",
      "key2": "value2"
    }
  ],
  "__tags__": {
    "tag1": "value1",
    "tag2": "value2"
  }
}
```

Request elements

- Request headers

  Only the following three fields are required in the request header:

  - x-log-apiversion: 0.6.0
  - x-log-bodyrawsize: 1234
  - x-log-compresstype: gzip

  The first two fields are required, and the third one is optional. For more information, see Common request headers.

- Request parameters
  - URL parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
endpoint	String	Yes	The endpoint of Log Service. For more information, see Obtain an endpoint.
project	String	Yes	The name of the project.

- Request body parameters

Parameter	Type	Required	Description
__topic__	String	No	The topic of the log.
__source__	String	No	The source of the log.
__logs__	list	Yes	The content of the log. Each element is a JSON object that indicates a log. **Note** The time in a log collected by using the WebTracking feature is the time when the log arrives at Log Service. You do not need to specify the __time__ field for each log. If this field is specified, it is overwritten by the time when the log arrives at Log Service.
__tags__	object	No	The tag of the log.

Response elements

- Response headers

  The PutWebtracking API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  No response parameter is returned after the request succeeds.

Examples

- Sample requests

```
POST my-project.cn-hangzhou.log.aliyuncs.com/logstores/logstore-test/track HTTP/1.1
x-log-apiversion: 0.6.0
x-log-bodyrawsize: 1234
x-log-compresstype: gzip
{
  "__topic__": "topic",
  "__source__": "source",
  "__logs__": [
    {
      "foo": "bar",
      "foo1": "bar1"
    },
    {
      "bar": "foo",
      "bar1": "foo1"
    }
  ],
  "__tags__": {
    "tag1": "value1",
    "tag2": "value2"
  }
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header:
{
Date=Wed, 20 May 2019 07:35:00 GMT,
Content-Length=0,
x-log-requestid=5642EFA499248C827B012B39,
Connection=close,
Server=nginx/1.6.1
}
```

20.1.1.8. Logtail machine group operations

20.1.1.8.1. CreateMachineGroup

Creates a machine group to which the Logtail configuration is distributed and applied.

Request syntax

```
POST /machinegroups HTTP/1.1
Authorization: <AuthorizationString>
Content-Type:application/json
Content-Length:<Content Length>
Content-MD5<:<Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "groupName" : "testgroup",
    "groupType" : "",
    "groupAttribute" : {
        "externalName" : "testgroup",
        "groupTopic": "testgrouptopic"
    },
    "machineIdentifyType" : "ip",
    "machineList" : [
        "test-ip1",
        "test-ip2"
    ]
}
```

Request elements

- Request headers

  The CreateMachineGroup API does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

  Request body parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group. The name must be unique in a project.
groupType	String	No	The type of the machine group. Default value: null.
machineIdentifyType	String	Yes	The type of the machine identifier. Valid values: ip and userdefined-id.
groupAttribute	object	Yes	The attribute of the machine group. Default value: null.

Parameter	Type	Required	Description
machineList	Array	Yes	The specific machine identifier, which can be an IP address or user-defined identifier.

The following table describes the attributes that are specified by the groupAttribute parameter.

Attribute	Type	Required	Description
groupTopic	String	No	The topic of the machine group. Default value: null.
externalName	String	No	The external identifier on which the machine group depends. Default value: null.

Response elements

- Response headers

  The CreateMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	MachineGroupAlreadyExist	group {GroupName} already exists
400	InvalidParameter	invalid group resource json
500	InternalServerError	Internal server error

Examples

- Sample requests

```
POST /machinegroups HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 17:57:33 GMT",
    "Content-Length": "187",
    "x-log-signaturemethod": "hmac-sha1",
    "Content-MD5": "82033D507DEAAD72067BB58DFDCB590D",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/json",
    "x-log-bodyrawsize": "0"
}
Body :
{
    "groupName": "test-machine-group",
    "groupType": "",
    "machineIdentifyType": "ip",
    "groupAttribute":     {
        "groupTopic": "testtopic",
        "externalName": "testgroup"
    },
    "machineList":     [
        "127.0.0.1",
        "127.0.0.2"
    ]
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 17:57:33 GMT",
    "Content-Length": "0",
    "x-log-requestid": "5642300D99248CB76D005D36",
    "Connection": "close",
    "Server": "nginx/1.6.1"
}
```

20.1.1.8.2. DeleteMachineGroup

Deletes a machine group. After you delete a machine group, the Logtail configuration applied to the machine group is also deleted.

Request syntax

```
DELETE /machinegroups/{groupName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The DeleteMachineGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group.

Response elements

- Response headers

  The DeleteMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
DELETE /machinegroups/test-machine-group-4 HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 19:13:28 GMT",
    "Content-Length": "0",
    "x-log-signaturemethod": "hmac-sha1",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/x-protobuf",
    "x-log-bodyrawsize": "0"
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 19:13:28 GMT",
    "Content-Length": "0",
    "x-log-requestid": "564241D899248C827B000CFE",
    "Connection": "close",
    "Server": "nginx/1.6.1"
}
```

20.1.1.8.3. UpdateMachineGroup

Updates the information of a machine group. If the Logtail configurations are applied to a machine group, the configurations are automatically applied to or removed from a machine when the machine is added to or removed from the machine group.

Request syntax

```
PUT /machinegroups/{groupName} HTTP/1.1
Authorization: <AuthorizationString>
Content-Type:application/json
Content-Length:<Content Length>
Content-MD5<:<Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "groupName": "test-machine-group",
    "groupType" : "",
    "groupAttribute" : {
        "externalName" : "testgroup",
        "groupTopic": "testgrouptopic"
    },
    "machineIdentifyType" : "ip",
    "machineList" : [
        "test-ip1",
        "test-ip2"
    ]
}
```

Request elements

- Request headers

  The UpdateMachineGroup API does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters
  - URL parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group.

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group. The name must be unique in a project.
groupType	String	No	The type of the machine group. Default value: null.
machineIdentifyType	String	Yes	The type of the machine identifier. Valid values: ip and userdefined-id.
groupAttribute	Object	Yes	The attribute of the machine group. Default value: null.
machineList	Array	Yes	The list of machine identifiers, which can be IP addresses or user-defined identifiers.

The groupAttribute parameter consists of the following parameters.

Parameter	Type	Required	Description
groupTopic	String	No	The topic of the machine group. Default value: null.
externalName	String	No	The identifier of the external management system on which the machine group depends. Default value: null.

Response elements

- Response headers

  The UpdateMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
400	InvalidParameter	invalid group resource json
500	InternalServerError	internal server error

Examples

- Sample requests

```
PUT /machinegroups/test-machine-group HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 18:41:43 GMT",
    "Content-Length": "194",
    "x-log-signaturemethod": "hmac-sha1",
    "Content-MD5": "2CEBAEBE53C078891527CB70A855BAF4",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/json",
    "x-log-bodyrawsize": "0"
}
Body :
{
    "groupName": "test-machine-group",
    "groupType": "",
    "machineIdentifyType": "userdefined",
    "groupAttribute":     {
        "groupTopic": "testtopic2",
        "externalName": "testgroup2"
    },
    "machineList":     [
        "uu_id_1",
        "uu_id_2"
    ]
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 18:41:43 GMT",
    "Content-Length": "0",
    "x-log-requestid": "56423A6799248CA57B00035C",
    "Connection": "close",
    "Server": "nginx/1.6.1"
}
```

20.1.1.8.4. ListMachineGroup

Lists machine groups.

Request syntax

```
GET /machinegroups? offset=1&size=100 HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The ListMachineGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
offset	Integer	No	The start position of the records to return. Default value: 0.
size	Integer	No	The maximum number of entries to return on each page. Default and maximum value: 500.
groupName	String	No	The group machine name that is used as a filtering condition. Fuzzy match is supported.

Response elements

- Response headers

The ListMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the response body contains a list of all machine groups in the specified project. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned machine groups on each page.
total	Integer	The total number of returned machine groups.
machinegroups	JSON array	The list of returned machine groups.

```
{
    "machinegroups":     [
        "test-machine-group",
        "test-machine-group-2"
    ],
    "count": 2,
    "total": 2
}
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
500	InternalServerError	internal server error

Examples

- Sample requests

```
GET /machinegroups? groupName=test-machine-group&offset=0&size=3 HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 18:34:44 GMT",
    "Content-Length": "0",
    "x-log-signaturemethod": "hmac-sha1",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/x-protobuf",
    "x-log-bodyrawsize": "0"
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 18:34:44 GMT",
    "Content-Length": "83",
    "x-log-requestid": "564238C499248C8F7B0001DE",
    "Connection": "close",
    "Content-Type": "application/json",
    "Server": "nginx/1.6.1"
}
Body :
{
    "machinegroups":     [
        "test-machine-group",
        "test-machine-group-2"
    ],
    "count": 2,
    "total": 2
}
```

20.1.1.8.5. GetMachineGroup

Queries the details of a machine group.

Request syntax

```
GET /machinegroups/{groupName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetMachineGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group.

Response elements

- Response headers

  The GetMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

Parameter	Type	Description
groupName	String	The name of the machine group. The name must be unique in a project.
groupType	String	The type of the machine group. Valid values: null and Armory. Default value: null.
machineIdentifyType	String	The type of the machine identifier. Valid values: ip and userdefined-id.
groupAttribute	JSON object	The attribute of the machine group. Default value: null.
machineList	JSON array	The list of machine identifiers, which can be IP addresses or user-defined identifiers.
createTime	Integer	The time when the machine group was created.
lastModifyTime	Integer	The time when the machine group was last updated.

The groupAttribute parameter consists of the following parameters.

Name	Type	Required	Description
groupTopic	String	No	The topic of the machine group.
externalName	String	No	The identifier of the external management system (Armory) on which the machine group depends.

```
{
    "groupName": "test-machine-group",
    "groupType": "",
    "groupAttribute":     {
        "externalName": "testgroup",
        "groupTopic": "testtopic"
    },
    "machineIdentifyType": "ip",
    "machineList":     [
        "127.0.0.1",
        "127.0.0.2"
    ],
    "createTime": 1447178253,
    "lastModifyTime": 1447178253
}
```

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	MachineGroupNotExist	group {GroupName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
GET /machinegroups/test-machine-group HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 18:15:24 GMT",
    "Content-Length": "0",
    "x-log-signaturemethod": "hmac-sha1",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/x-protobuf",
    "x-log-bodyrawsize": "0"
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 18:15:23 GMT",
    "Content-Length": "239",
    "x-log-requestid": "5642343B99248CB36D0060B8",
    "Connection": "close",
    "Content-Type": "application/json",
    "Server": "nginx/1.6.1"
}
Body :
{
    "groupName": "test-machine-group",
    "groupType": "",
    "groupAttribute":     {
        "externalName": "testgroup",
        "groupTopic": "testtopic"
    },
    "machineIdentifyType": "ip",
    "machineList":     [
        "127.0.0.1",
        "127.0.0.2"
    ],
    "createTime": 1447178253,
    "lastModifyTime": 1447178253
}
```

20.1.1.8.6. ApplyConfigToMachineGroup

Applies a Logtail configuration to a machine group.

Request syntax

```
GET /machinegroups/{groupName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The ApplyConfigToMachineGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
GroupName	String	Yes	The name of the machine group.
ConfigName	String	Yes	The name of the Logtail configuration.

Response elements

- Response headers

  The ApplyConfigToMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
404	ConfigNotExist	config {ConfigName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
PUT /machinegroups/sample-group/configs/logtail-config-sample
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 09:44:43 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
{
    "date": "Mon, 09 Nov 2015 09:44:43 GMT",
    "connection": "close",
    "x-log-requestid": "56406B0B99248CAA230BA094",
    "content-length": "0",
    "server": "nginx/1.6.1"
}
```

20.1.1.8.7. RemoveConfigFromMachineGroup

Deletes a Logtail configuration from a machine group.

Request syntax

```
GET /machinegroups/{groupName} HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The RemoveConfigFromMachineGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
GroupName	String	Yes	The name of the machine group.
ConfigName	String	Yes	The name of the Logtail configuration.

Response elements

- Response headers

  The RemoveConfigFromMachineGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
404	ConfigNotExist	config {ConfigName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
DELETE /machinegroups/sample-group/configs/logtail-config-sample
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 09:48:48 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
{
    "date": "Mon, 09 Nov 2015 09:48:48 GMT",
    "connection": "close",
    "x-log-requestid": "56406C0099248CAA230BE135",
    "content-length": "0",
    "server": "nginx/1.6.1"
}
```

20.1.1.8.8. ListMachines

Lists your machines in a machine group that is connected with Log Service.

Request syntax

```
GET /machinegroups/{groupName}/machines HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

The ListMachines API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group.
offset	Integer	No	The start position of the returned records. Default value: 0.
size	Integer	No	The maximum number of entries to return on each page. Default and maximum value: 500.

Response elements

- Response headers

  The ListMachines API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

Parameter	Type	Description
count	Integer	The number of returned machines on each page.
total	Integer	The total number of machines.
machines	JSON array	The list of returned machines.

The machines parameter consists of the following attributes.

Attribute	Type	Description
ip	String	The IP address of the machine.
machine-uniqueid	String	The universally unique identifier (UUID) of the machine.
userdefined-id	String	The user-defined identifier of the machine.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
500	InternalServerError	internal server error

Additional considerations

The API operation lists only the machines that are normally connected with Log Service.

Examples

- Sample requests

```
GET /machinegroups/test-machine-group-5/machines? offset=0&size=3 HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 19:04:57 GMT",
    "Content-Length": "0",
    "x-log-signaturemethod": "hmac-sha1",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/x-protobuf",
    "x-log-bodyrawsize": "0"
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 19:04:58 GMT",
    "Content-Length": "324",
    "x-log-requestid": "56423FD999248C827B000A57",
    "Connection": "close",
    "Content-Type": "application/json",
    "Server": "nginx/1.6.1"
}
Body :
{
    "machines":     [
        {
            "ip": "10.101.166.116",
            "machine-uniqueid": "",
            "userdefined-id": "",
            "lastHeartbeatTime": 1447182247
        },
        {
            "ip": "10.101.165.193",
            "machine-uniqueid": "",
            "userdefined-id": "",
            "lastHeartbeatTime": 1447182246
        },
        {
            "ip": "10.101.166.91",
            "machine-uniqueid": "",
            "userdefined-id": "",
            "lastHeartbeatTime": 1447182248
        }
    ],
    "count": 3,
    "total": 8
}
```

20.1.1.8.9. GetAppliedConfigs

Queries the Logtail configurations that are applied to a machine group.

Request syntax

```
GET /machinegroups/{groupName}/configs HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

The GetAppliedConfigs API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group.

Response elements

- Response headers

  The GetAppliedConfigs API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After a GetAppliedConfigs request succeeds, the response body contains a list of all machines in the specified machine group. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned configurations on each page.
configs	String array	The list of returned configurations.

Error codes

In addition to the Common error codes of Log Service API operations, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
GET /machinegroups/test-machine-group/configs HTTP/1.1
Header :
{
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Tue, 10 Nov 2015 19:45:48 GMT",
    "Content-Length": "0",
    "x-log-signaturemethod": "hmac-sha1",
    "User-Agent": "sls-java-sdk-v-0.6.0",
    "Content-Type": "application/x-protobuf",
    "x-log-bodyrawsize": "0"
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header :
{
    "Date": "Tue, 10 Nov 2015 19:45:48 GMT",
    "Content-Length": "53",
    "x-log-requestid": "5642496C99248C8C7B00173F",
    "Connection": "close",
    "Content-Type": "application/json",
    "Server": "nginx/1.6.1"
}
Body :
{
    "configs":     [
        "two",
        "three",
        "test_logstore"
    ],
    "count": 3
}
```

20.1.1.9. Logtail configuration operations

20.1.1.9.1. CreateConfig

Creates a Logtail configuration.

Request syntax

```
POST /configs HTTP/1.1
Authorization: <AuthorizationString>
Content-Type:application/json
Content-Length:<Content Length>
Content-MD5<:<Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "configName": "testcategory1",
    "inputType": "file",
    "inputDetail": {
        "logType": "common_reg_log",
        "logPath": "/var/log/httpd/",
        "filePattern": "access*.log",
        "localStorage": true,
        "timeFormat": "%Y/%m/%d %H:%M:%S",
        "logBeginRegex": ".*",
        "regex": "(\w+)(\s+)",
        "key" :["key1", "key2"],
        "filterKey":["key1"],
        "filterRegex":["regex1"],
        "fileEncoding":"utf8",
        "topicFormat": "none"
    },
    "outputType": "LogService",
    "outputDetail":
    {
        "logstoreName": "perfcounter"
    }
}
```

Request elements

- Request headers

  The CreateConfig API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

  For information about the request parameters and Logtail configuration examples, see Logtail configurations.

Response elements

- Response headers

  The CreateConfig API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response elements

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	ConfigAlreadyExist	config {Configname} already exists
400	InvalidParameter	invalid config resource json
500	InternalServerError	internal server error

The configuration fails to be created if an error occurs, for example, the configuration already exists, the format is incorrect, the required parameters are missing, or the quota is exceeded.

Examples

- Sample requests

```
POST /configs HTTP/1.1
Header :
{
    'Content-Length': 737,
    'Host': 'ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com',
    'x-log-bodyrawsize': 737,
    'Content-MD5': 'FBA01ECF7255BE143379BC70C56BBF68',
    'x-log-signaturemethod': 'hmac-sha1',
    'Date': 'Mon, 09 Nov 2015 07:45:30 GMT',
    'x-log-apiversion': '0.6.0',
    'User-Agent': 'log-python-sdk-v-0.6.0',
    'Content-Type': 'application/json',
    'Authorization': 'LOG <yourAccessKeyId>:<yourSignature>'
}
Body:
{
    "configName": "sample-logtail-config",
    "inputType": "file",
    "inputDetail": {
        "logType": "common_reg_log",
        "logPath": "/var/log/httpd/",
        "filePattern": "access*.log",
        "localStorage": true,
        "timeFormat": "%d/%b/%Y:%H:%M:%S",
        "logBeginRegex": "\\d+\\.\\d+\\.\\d+\\.\\d+ - .*",
        "regex": "([\\d\\.] +) \\S+ \\S+ \\[(\\S+) \\S+\\] \"(\\w+) ([^\"]*)\" ([\\d\\.]+
) (\\d+) (\\d+) (\\d+|-) \"([^\"]*)\" \"([^\"]*)\".*",
        "key": ["ip", "time", "method", "url", "request_time", "request_length", "status"
, "length", "ref_url", "browser"],
        "filterKey": [],
        "filterRegex": [],
        "topicFormat": "none",
        "fileEncoding": "utf8"
    },
    "outputType": "LogService",
    "outputDetail":
    {
        "logstoreName": "sls-test-logstore"
    }
}
```

- Sample responses

```
HTTP/1.1 200 OK
Header
{
    'date': 'Mon, 09 Nov 2015 07:45:30 GMT',
    'connection': 'close',
    'x-log-requestid': '56404F1A99248CA26C002180',
    'content-length': '0',
    'server': 'nginx/1.6.1'
}
```

20.1.1.9.2. ListConfig

Lists all configurations of a project. You can set the relevant parameters in the syntax to list the configurations on multiple pages.

Request syntax

```
GET /configs? offset=0&size=100 HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The ListConfig API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
offset	Integer	No	The start position of entries to return. Default value: 0.
size	Integer	No	The maximum number of entries to return on each page. Default value: 500.

Response elements

- Response headers

  The ListConfig API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The response body of the ListConfig API operation contains a list of all configurations in the project. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned configurations on each page.
total	Integer	The total number of returned configurations.

Parameter	Type	Description
configs	String array	The list of returned configurations.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ConfigNotExist	config {Configname} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
GET /configs? offset=0&size=10 HTTP/1.1
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 09:19:13 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header :
{
    "content-length": "103",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Mon, 09 Nov 2015 09:19:13 GMT",
    "content-type": "application/json",
    "x-log-requestid": "5640651199248CAA2300C2BA"
}
Body:
{
    "count": 3,
    "configs":
    [
        "logtail-config-sample",
        "logtail-config-sample-2",
        "logtail-config-sample-3"
    ],
    "total": 3
}
```

20.1.1.9.3. GetAppliedMachineGroups

Lists the machines that apply a Logtail configuration.

Request syntax

```
GET /configs/{configName}/machinegroups HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetAppliedMachineGroups API operation does not have special request headers. For information about common request headers of Log Service API operations, see Logtail configurations.

- Request parameters

Parameter	Type	Required	Description
ConfigName	String	Yes	The name of the Logtail configuration.

Response elements

- Response headers

The GetAppliedMachineGroups API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the response body contains a list of all machines in the specified machine group. The following table describes the response parameters.

Parameter	Type	Description
count	Integer	The number of returned machine groups.
machinegroups	String array	The list of returned machine groups.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	GroupNotExist	group {GroupName} does not exist
500	InternalServerError	internal server error

Examples

- Sample requests

```
GET /configs/logtail-config-sample/machinegroups
Header:
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 09:51:38 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header :
{
    "content-length": "44",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Mon, 09 Nov 2015 09:51:38 GMT",
    "content-type": "application/json",
    "x-log-requestid": "56406CAA99248CAA230BE828"
}
Body:
{
    "count": 1,
    "machinegroups":
    [
        "sample-group"
    ]
}
```

20.1.1.9.4. GetConfig

Queries the details of a Logtail configuration.

Request syntax

```
GET /configs/<configName> HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The GetConfig API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
ConfigName	String	Yes	The name of the Logtail configuration.

Response elements

- Response headers

  The GetConfig API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common request headers.

- Response parameters

For information about the response parameters and Logtail configuration examples, see Logtail configurations.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ConfigNotExist	Config {Configname} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET /configs/logtail-config-sample
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 08:29:15 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header :
{
    "content-length": "730",
    "server": "nginx/1.6.1",
    "connection": "close",
    "date": "Mon, 09 Nov 2015 08:29:15 GMT",
    "content-type": "application/json",
    "x-log-requestid": "5640595B99248CAA23004A59"
}
Body :
{
    "configName": "logtail-config-sample",
    "outputDetail": {
        "endpoint": "http://cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
        "logstoreName": "sls-test-logstore"
    },
    "outputType": "LogService",
    "inputType": "file",
    "inputDetail": {
        "regex": "([\\d\\.] +) \\S+ \\S+ \\[(\\S+) \\S+\\] \"(\\w+) ([^\"]*)\" ([\\d\\.]+
) (\\d+) (\\d+) (\\d+|-) \"([^\"]*)\" \"([^\"]*)\".*",
        "filterKey": [],
        "logPath": "/var/log/httpd/",
        "logBeginRegex": "\\d+\\.\\d+\\.\\d+\\.\\d+ - .*",
        "logType": "common_reg_log",
        "topicFormat": "none",
        "localStorage": true,
        "key": [
            "ip",
            "time",
            "method",
            "url",
            "request_time",
            "request_length",
            "status",
            "length",
            "ref_url",
            "browser"
        ],
        "filePattern": "access*.log",
        "timeFormat": "%d/%b/%Y:%H:%M:%S",
        "filterRegex": []
    },
    "createTime": 1447040456,
    "lastModifyTime": 1447050456
}
```

20.1.1.9.5. DeleteConfig

Deletes a Logtail configuration. When you call this API operation, the Logtail configuration is deleted even if it is applied to the Machine Group.

Request syntax

```
DELETE /configs/<configName> HTTP/1.1
Authorization: <AuthorizationString>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
```

Request elements

- Request headers

  The DeleteConfig API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
ConfigName	String	Yes	The name of the logtail configuration.

Response elements

- Response headers

  The DeleteConfig API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ConfigNotExist	config {Configname} does not exist
400	InvalidParameter	invalid config resource json
500	InternalServerError	internal server error

Examples

- Sample requests

```
DELETE /configs/logtail-config-sample
Header :
{
    "Content-Length": 0,
    "x-log-signaturemethod": "hmac-sha1",
    "x-log-bodyrawsize": 0,
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "Date": "Mon, 09 Nov 2015 09:28:21 GMT",
    "x-log-apiversion": "0.6.0",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
```

- Sample responses

```
Header :
{
    "date": "Mon, 09 Nov 2015 09:28:21 GMT",
    "connection": "close",
    "x-log-requestid": "5640673599248CAA230836C6",
    "content-length": "0",
    "server": "nginx/1.6.1"
}
```

20.1.1.9.6. UpdateConfig

Updates Logtail configurations. If the Logtail configurations are applied to a machine group, the configurations of the machine group are also updated.

Request syntax

```
PUT /configs/<configName> HTTP/1.1
Authorization: <AuthorizationString>
Content-Type:application/json
Content-Length:<Content Length>
Content-MD5<:<Content MD5>
Date: <GMT Date>
Host: <Project Endpoint>
x-log-apiversion: 0.6.0
x-log-signaturemethod: hmac-sha1
{
    "configName": "testcategory1",
    "inputType": "file",
    "inputDetail": {
        "logType": "common_reg_log",
        "logPath": "/var/log/httpd/",
        "filePattern": "access.log",
        "localStorage": true,
        "timeFormat": "%Y/%m/%d %H:%M:%S",
        "logBeginRegex": ".*",
        "regex": "(\w+)(\s+)",
        "key" :["key1", "key2"],
        "filterKey":["key1"],
        "filterRegex":["regex1"],
        "topicFormat": "none"
    },
    "outputType": "LogService",
    "outputDetail":
    {
        "logstoreName": "perfcounter"
    }
}
```

Request elements

- Request headers

  The UpdateConfig API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

  For information about the request parameters and Logtail configuration examples, see Logtail configurations.

Response elements

- Response headers

  The UpdateConfig API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ConfigNotExist	config {Configname} does not exist
400	InvalidParameter	invalid config resource json
400	BadRequest	config resource configname does not match with request
500	InternalServerError	internal server error

The configuration fails to be created if an error occurs, for example, the format is incorrect, the required parameters are missing, or the quota is exceeded.

Examples

- Sample requests

```
PUT /configs/logtail-config-sample
Header :
{
    "Content-Length": 737,
    "Host": "ali-test-project.cn-hangzhou-devcommon-intranet.sls.aliyuncs.com",
    "x-log-bodyrawsize": 737,
    "Content-MD5": "431263EB105D584A5555762A81E869C0",
    "x-log-signaturemethod": "hmac-sha1",
    "Date": "Mon, 09 Nov 2015 09:14:32 GMT",
    "x-log-apiversion": "0.6.0",
    "User-Agent": "log-python-sdk-v-0.6.0",
    "Content-Type": "application/json",
    "Authorization": "LOG <yourAccessKeyId>:<yourSignature>"
}
Body :
{
    "outputDetail": {
        "logstoreName": "sls-test-logstore"
    },
    "inputType": "file",
    "inputDetail": {
        "regex": "([\\d\\.] +) \\S+ \\S+ \\[(\\S+) \\S+\\] \"(\\w+) ([^\"]*)\" ([\\d\\.]+
) (\\d+) (\\d+) (\\d+|-) \"([^\"]*)\" \"([^\"]*)\".*",
        "filterKey": [],
        "logPath": "/var/log/nginx/",
        "logBeginRegex": "\\d+\\.\\d+\\.\\d+\\.\\d+ - .*",
        "logType": "common_reg_log",
        "topicFormat": "none",
        "localStorage": true,
        "key": [
            "ip",
            "time",
            "method",
            "url",
            "request_time",
            "request_length",
            "status",
            "length",
            "ref_url",
            "browser"
        ],
        "filePattern": "access*.log",
        "timeFormat": "%d/%b/%Y:%H:%M:%S",
        "filterRegex": []
    },
    "outputType": "LogService",
    "configName": "logtail-config-sample"
}
```

- Sample responses

```
{
    "date": "Mon, 09 Nov 2015 09:14:32 GMT",
    "connection": "close",
    "x-log-requestid": "564063F899248CAA2300B778",
    "content-length": "0",
    "server": "nginx/1.6.1"
}
```

20.1.1.10. Consumer group operations

20.1.1.10.1. CreateConsumerGroup

Creates a consumer group in a Logstore.

Request syntax

```
POST /logstores/<logstoreName>/consumergroups HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: <ContentLength>
{
  "consumerGroup": <consumerGroup>,
  "timeout": <timeout>,
  "order": <order>
}
```

Request elements

- Request headers

  The CreateConsumerGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.
consumerGroup	String	Yes	The name of the consumer group. The name must be unique in a project.
timeout	Integer	Yes	The timeout period. If Log Service does not receive a heartbeat message from a consumer within the timeout period, the consumer is deleted.

Parameter	Type	Required	Description
order	Boolean	Yes	Specifies whether to consume data in sequence from a single shard. Valid values: ◦ true: The data in a single shard is consumed in sequence. The data in the original shard is first consumed after the shard is split. Then, the data in the new shards is consumed at the same time. ◦ false: The data in a single shard is randomly consumed.

Response elements

- Response headers

  The CreateConsumerGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	ConsumerGroupAlreadyExist	consumer group already exist
400	JsonInfoInvalid	consumerGroup or timeout is of error format
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
POST /logstores/my-logstore/consumergroups HTTP/1.1
Header:
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Fri, 04 May 2018 08:02:22 GMT
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: 65
Connection: Keep-Alive
Body:
{
  "consumerGroup": "consumer-group-1",
  "timeout": 300,
  "order": true
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Fri, 04 May 2018 08:15:11 GMT
x-log-requestid: 5AEC168FA796F4195BF404CB
```

20.1.1.10.2. DeleteConsumerGroup

Deletes a consumer group.

Request syntax

```
DELETE /logstores/<logstoreName>/consumergroups/<consumerGroupName> HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type:  application/x-protobuf
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
```

Request elements

- Request headers

  The DeleteConsumerGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore to which the consumer group belongs.
consumerGroup	String	Yes	The consumer group to be deleted.

Response elements

- Response headers

  The DeleteConsumerGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Additional considerations

If you attempt to delete a consumer group that does not exist, the system will return a success message.

Examples

- Sample requests

```
DELETE /logstores/logstore-test/consumergroups/consumer-group-1 HTTP/1.1
Header:
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Fri, 04 May 2018 08:02:22 GMT
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: 65
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Fri, 04 May 2018 08:15:11 GMT
x-log-requestid: 5AEC168FA796F4195BF404CB
```

20.1.1.10.3. GetCheckPoint

Queries the checkpoints of one or all shards from which data is consumed by a consumer group.

Request syntax

```
GET /logstores/<logstoreName>/consumergroups/<consumerGroup>? shard=<shardId> HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Connection: Keep-Alive
```

Request elements

- Request headers

  The GetCheckPoint API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore to which the consumer group belongs.
consumerGroup	String	Yes	The name of the consumer group.
shardId	Integer	No	The ID of the shard. ◦ If the specified shard does not exist, an empty list is returned. ◦ If the shard ID is not specified, the checkpoints of all shards are returned.

Response elements

- Response headers

  The GetCheckPoint API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the response body contains the checkpoint of the shard from which data is consumed by the specified consumer group. The following table describes the response parameters.

Parameter	Type	Description
shard	Integer	The ID of the shard.
checkpoint	String	The value of the checkpoint.
updateTime	Integer	The time when the checkpoint was last updated.
consumer	String	The consumer that consumes data from the shard.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
404	ConsumerGroupNotExist	consumer group not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET /logstores/my-logstore/consumergroups/consumer_group_test? shard=0
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Fri, 04 May 2018 09:26:53 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Type: application/json
Content-Length: 111
Connection: close
Access-Control-Allow-Origin: *
Date: Fri, 04 May 2018 09:26:53 GMT
x-log-requestid: 5AEC275D1FFC036AB254B20C
[
  {
    "shard": 0,
    "checkpoint": "MTUyNDE1NTM3OTM3MzkwODQ5Ng==",
    "updateTime": 1524224984800922,
    "consumer": "consumer_1"
  }
]
```

20.1.1.10.4. HeartBeat

Sends a heartbeat packet to Log Service for a consumer.

Request syntax

```
POST /logstores/<logstoreName>/consumergroups/<consumerGroup>? type=heartbeat&consumer=<con
sumer> HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: <ContentLength>
<shard ID list>
```

Request elements

- Request headers

The HeartBeat API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in a project.
consumerGroup	String	Yes	The name of the consumer group. The name must be unique in a project.
consumer	String	Yes	The consumer.
{Shard ID List}	Array	Yes	The ID list of shards from which data is consumed.

Response elements

- Response headers

  The HeartBeat API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the request succeeds, the HTTP status code 200 is returned. An ID list is also returned, containing all shards from which data are consumed by the consumer.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	NotExistConsumerWithBody	non-exist consumer with non-empty body of heartbeat message
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
404	ConsumerGroupNotExist	consumer group not exist
500	InternalServerError	Specified Server Error Message

Additional considerations

The heartbeat packet can be sent only when the connection between the consumer and Log Service is established.

Examples

- Sample requests

```
POST /logstores/my-logstore/consumergroups/consumer_group_test? type=heartbeat&consumer=c
onsumer_1 HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 06 May 2018 09:44:10 GMT
Content-Type: application/json
Content-MD5: 8D5162CA104FA7E79FE80FD92BB657FB
Content-Length: 3
Connection: Keep-Alive
[0]
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Type: application/json
Content-Length: 5
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 06 May 2018 09:44:11 GMT
x-log-requestid: 5AEECE6B1FFC0366B2553FB5
[0,1]
```

20.1.1.10.5. ListConsumerGroup

Lists all consumer groups of a Logstore.

Request syntax

```
GET /logstores/<logstoreName>/consumergroups HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

Request elements

- Request headers

  The ListConsumerGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.

Response elements

- Response headers

  The ListConsumerGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  After the ListConsumerGroup request succeeds, the response body contains a list of all consumer groups that read log data from the specified Logstore. The following table describes the response parameters.

Parameter	Type	Description
consumerGroup	String	The name of the consumer group.
timeout	Integer	The timeout period. If the specified Logstore does not receive a heartbeat packet from the consumer group during the timeout period, the consumer group is deleted.
order	Boolean	Indicates whether log data was consumed in sequence.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
GET /logstores/my-logstore/consumergroups HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Fri, 04 May 2018 08:47:30 GMT
Content-Type: application/x-protobuf
Connection: Keep-Alive
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Type: application/json
Connection: close
Access-Control-Allow-Origin: *
Date: Fri, 04 May 2018 08:47:31 GMT
x-log-requestid: 5AEC1E23048191954B42EAB9
[
  {
    "name": "test-consumer-group",
    "timeout": 30,
    "order": true
  }
]
```

20.1.1.10.6. UpdateCheckPoint

Updates the checkpoint of a shard in a Logstore of a project for a consumer group.

Request syntax

```
POST /logstores/<logstoreName>/consumergroups/<consumerGroupName>? forceSuccess=<forceSucce
ss>&type=checkpoint&consumer=<consumer> HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-Length: <ContentLength>
Connection: Keep-Alive
{
  "shard": <shardID>,
  "checkpoint": <checkpoint>
}
```

Request elements

- Request headers

  The UpdateCheckPoint API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore to which the consumer group belongs.
consumerGroup	String	Yes	The name of the consumer group.
forceSuccess	Boolean	No	Specifies whether to forcibly update the consumer group.
consumer	String	No	The consumer.
shard	Integer	Yes	The ID of the shard.
checkpoint	String	Yes	The value of the checkpoint.

Response elements

- Response headers

  The UpdateCheckPoint API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common error codes, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	InvalidShardCheckPoint	shard checkpoint not encoded by base64
404	ProjectNotExist	The Project does not exist : {Project}
404	LogStoreNotExist	logstore {logstoreName} does not exist
404	ConsumerGroupNotExist	consumer group not exist

HTTP status code	Error code	Error message
404	ShardNotExist	shard not exist
500	InternalServerError	Specified Server Error Message

Additional considerations

If the consumer is not specified, the checkpoint can be updated only when the forceSuccess parameter is set to true.

Examples

- Sample requests

```
POST /logstores/logstore-4/consumergroups/consumer_group_test? forceSuccess=false&type=ch
eckpoint&consumer=consumer_1 HTTP/1.1
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Sun, 06 May 2018 09:14:53 GMT
Content-Type: application/json
Content-MD5: 59457BAFB3F85A5117BDE243947583B0
Content-Length: 55
Connection: Keep-Alive
{
  "shard": 0,
  "checkpoint": "MTUyNDE1NTM3OTM3MzkwODQ5Ng=="
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Sun, 06 May 2018 09:14:54 GMT
x-log-requestid: 5AEEC78E1FFC0366B24F1C63
```

20.1.1.10.7. UpdateConsumerGroup

Updates the attributes of a consumer group.

Request syntax

```
PUT /logstores/<logstoreName>/consumergroups/<consumerGroupName> HTTP/1.1
Authorization: <AuthorizationString>
x-log-bodyrawsize: 0
User-Agent: <UserAgent>
x-log-apiversion: 0.6.0
Host: <Project Endpoint>
x-log-signaturemethod: hmac-sha1
Date: <GMT Date>
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: <ContentLength>
{
  "timeout": <timeout>,
  "order": <order>
}
```

Request elements

- Request headers

  The UpdateConsumerGroup API operation does not have special request headers. For information about common request headers of Log Service API operations, see Common request headers.

- Request parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore to which the consumer group belongs.
consumerGroup	String	Yes	The name of the consumer group.
timeout	Integer	No	The timeout period. If Log Service does not receive a heartbeat packet during the timeout period, the consumer group is deleted.
order	Boolean	No	Specifies whether to consume data in sequence from a single shard. Valid values: ◦ true: The data in a single shard is consumed in sequence. The data in the original shard is first consumed after the shard is split. Then, the data in the new shards is consumed at the same time. ◦ false: The data in a single shard is randomly consumed.

> **Note** You must specify the `timeout` or `order` parameter, or specify both parameters.

Response elements

- Response headers

  The UpdateConsumerGroup API operation does not have special response headers. For information about common response headers of Log Service API operations, see Common response headers.

- Response parameters

  The HTTP status code 200 is returned.

Error codes

In addition to Common response headers, the API operation may also return the following special error codes.

HTTP status code	Error code	Error message
400	JsonInfoInvalid	timeout is of error value type
404	ProjectNotExist	The Project does not exist : {Project}
404	ConsumerGroupNotExist	consumer group not exist
404	LogStoreNotExist	logstore {logstoreName} does not exist
500	InternalServerError	Specified Server Error Message

Examples

- Sample requests

```
PUT /logstores/logstore-test/consumergroups/consumer-group-1 HTTP/1.1
Header:
Authorization: LOG <yourAccessKeyId>:<yourSignature>
x-log-bodyrawsize: 0
User-Agent: sls-java-sdk-v-0.6.1
x-log-apiversion: 0.6.0
Host: my-project.cn-shanghai.log.aliyuncs.com
x-log-signaturemethod: hmac-sha1
Date: Fri, 04 May 2018 08:02:22 GMT
Content-Type: application/json
Content-MD5: F58544E4D022CC28A93D0B7CC208A5AA
Content-Length: 65
Connection: Keep-Alive
Body:
{
  "order": false,
  "timeout": 100
}
```

- Sample responses

```
HTTP/1.1 200
Server: nginx/1.12.1
Content-Length: 0
Connection: close
Access-Control-Allow-Origin: *
Date: Fri, 04 May 2018 08:15:11 GMT
x-log-requestid: 5AEC168FA796F4195BF404CB
```

20.1.1.11. RAM or STS

20.1.1.11.1. Overview

Use RAM to authorize a RAM user to access Log Service resources of an Alibaba Cloud account

You can create projects, Logstores, Logtail configurations, and machine group in Log Service. You have full permissions on these resources. You can call all relevant API operations to use the resources.

However, if you use your Alibaba Cloud account to create a RAM user, the RAM user is unauthorized to use your resources in Log Service. To allow the RAM user to use your resources, you must grant relevant permissions on the resources to the RAM user.

You can use RAM policies to grant a RAM user the following permissions on Log Service resources:

- Upload data to a specified Logstore

  If you grant this permission to a RAM user, the RAM user can upload data to the specified Logstore by using the relevant API or SDK. The policy is as follows:

```
  {
    "Version": "1",
    "Statement": [
      {
        "Action": [
          "log:Post*",
          "log:BatchPost*"
        ],
        "Resource": ["acs:log:*:*:project/<The name of the specified proejct>/logstore/<T
he name of the specified Logstore>"],
        "Effect": "Allow"
      }
    ]
  }
```

- Query data of a specified Logstore in the console

  If you grant this permission to a RAM user, the RAM user can query logs, pull logs, and view the Logstore list after logging on to the Log Service console. The policy is as follows:

```
{
  "Version": "1",
  "Statement": [
    {
      "Action": ["log:List*"],
      "Resource": ["acs:log:*:*:project/<The name of the specified proejct>/*"],
      "Effect": "Allow"
    },
    {
      "Action": ["log:Get*"],
      "Resource": ["acs:log:*:*:project/<The name of the proejct>/logstore/<The name of the Logstore>"],
      "Effect": "Allow"
    }
  ]
}
```

You can skip this topic if you do not need to grant access to your Log Service resources across accounts. Skipping this topic does not affect your understanding and use of the other topics in the document.

Related topics:

- Resource list
- Action list
- Authentication rules

20.1.1.11.2. Resource list

This topic describes the resources whose permissions you can grant to a RAM user. You can use an Alibaba Cloud account to grant a RAM user specific permissions on Log Service resources.

The following table lists the resources and relevant expressions.

Resource	Expression in policies
Project and Logstore	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}
Project, Logstore, and LogShipper	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}/shipper/${shipperName}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/*
Project and Logtail	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailconfig}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/*
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}

Project and machine group Resource	Expression in policies
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/*
Project and consumer group	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}/consumergroup/${consumerGroupName}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}/consumergroup/*
Project and saved search	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/savedsearch/${savedSearchName}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/savedsearch/*
Project and dashboard	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/dashboard/${dashboardName}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/dashboard/*
Project and alert	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/alert/${alarmName}
	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/alert/*
All types of resources	acs:log:${regionName}:${projectOwnerAliUid}:*
	acs:log:*:${projectOwnerAliUid}:*

Note The resources in Log Service have hierarchical relationships. Projects are root resources. Logstores, Logtail, and machine groups are parallel sub-resources of projects. LogShipper and consumer groups are sub-resources of Logstores.

The following table describes the parameters that are used in policies.

Parameter	Description
`${regionName}`	The name of a region.
`${projectOwnerAliUid}`	The ID of an Alibaba Cloud account.
`${projectName}`	The name of a project.
`${logstoreName}`	The name of a Logstore.
`${logtailconfig}`	The name of a Logtail configuration.
`${machineGroupName}`	The name of a machine group.

Parameter	Description
`${shipperName}`	The name of a LogShipper rule.
`${consumerGroupName}`	The name of a consumer group.
`${savedSearchName}`	The name of a saved search.
`${dashboardName}`	The name of a dashboard.
`${alarmName}`	The name of an alert rule.

20.1.1.11.3. Action list

This topic describes the actions that a RAM user can perform on Log Service resources after you grant the relevant permissions to the RAM user in the RAM console.

Actions

In the RAM console, you can authorize a RAM user to perform the following actions on Log Service resources.

Action	Description
CreateProject	Creates a project.
GetLogs	Queries logs in a Logstore of a project.
GetHistograms	Queries the distribution of logs in a Logstore of a project.
GetLogstore	Queries the attributes of a Logstore.
ListLogstore	Lists all Logstores in a project.
CreateLogstore	Creates a Logstore in a project.
DeleteLogstore	Deletes a Logstore, including all shards and indexes in the Logstore.
UpdateLogstore	Updates the attributes of a Logstore.
GetCursorOrData (GetCursor and PullLogs)	Queries a cursor based on a point in time. It can also be used to query logs based on a cursor and quantity.
ListShards	Lists all available shards in a Logstore.
PostLog	Writes log data to a Logstore.
CreateConfig	Creates a Logtail configuration in a project.
UpdateConfig	Updates a Logtail configuration.

Action	Description
DeleteConfig	Deletes a Logtail configuration.
GetConfig	Queries the details of a Logtail configuration.
UpdateConfig	Lists all Logtail configurations in a project. You can set the relevant parameters to show the configurations on multiple pages.
CreateMachineGroup	Creates a machine group to specify the servers from which logs are collected.
UpdateMachineGroup	Updates the information of a machine group.
DeleteMachineGroup	Deletes a machine group.
GetMachineGroup	Queries the details of a machine group.
ListMachineGroup	Lists machine groups.
ListMachines	Lists your machines in a machine group that is connected with Log Service.
ApplyConfigToMachineGroup	Applies a Logtail configuration to a machine group.
RemoveConfigFromMachineGroup	Deletes a Logtail configuration from a machine group.
GetAppliedConfigs	Queries the name of Logtail configuration applied to a machine group.
CreateConsumerGroup	Creates a consumer group in a Logstore.
UpdateConsumerGroup	Modifies the attributes of a consumer group.
DeleteConsumerGroup	Deletes a consumer group.
ListConsumerGroup	Lists all consumer groups of a Logstore.
UpdateCheckPoint	Updates the checkpoint of a shard for a consumer group.
HeartBeat	Sends a heartbeat packet to Log Service for a consumer.
GetCheckPoint	Queries the checkpoints of one or all shards from which data is consumed by a consumer group.
CreateIndex	Creates one or more indexes for a Logstore.
DeleteIndex	Deletes one or more indexes from a Logstore.
GetIndex	Queries one or more indexes of a Logstore.

Action	Description
UpdateIndex	Updates one or more indexes of a Logstore.
log:CreateSavedSearch	Creates a saved search.
log:UpdateSavedSearch	Updates a saved search.
log:GetSavedSearch	Queries a saved search.
log:DeleteSavedSearch	Deletes a saved search.
log:ListSavedSearch	Queries the saved search list.
log:CreateDashboard	Creates a dashboard.
log:UpdateDashboard	Updates a dashboard.
log:GetDashboard	Queries a dashboard.
log:DeleteDashboard	Deletes a dashboard.
log:ListDashboard	Queries the dashboard list.
log:CreateJob	Creates a job, for example, an alert or subscription.
log:UpdateJob	Updates a job.
log:CreateApp	Grants a RAM user the permission to create an application, for example, Cost Manager or Log Audit Service.
log:UpdateApp	Grants a RAM user the permission to update an application, for example, Cost Manager or Log Audit Service.
log:GetApp	Grants a RAM user the permission to view an application, for example, Cost Manager or Log Audit Service.
log:DeleteApp	Grants a RAM user the permission to delete an application, for example, Cost Manager or Log Audit Service.

20.1.1.11.4. Authentication rules

When a RAM user calls Log Service API operations to access the resources of an Alibaba Cloud account, Log Service authenticate the RAM user. This ensures that the resource owner has granted the RAM user the relevant permissions on the resources. This topic describes the authentication rules that apply when a RAM user calls Log Service APIs to access the resources of an Alibaba Cloud account.

Logstore authentication rules

Each Log Service API operation determines which permissions to check based on the relevant resources and the API syntax. The following table describes the Logstore authentication rules for the relevant API operations.

Operation	Resource
log:GetLogStore	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}
log:ListLogStores	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/*
log:CreateLogStore	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/*
log:DeleteLogStore	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}
log:UpdateLogStore	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}

LogHub authentication rules

The following table describes the LogHub authentication rules of the relevant data write and consumption API operations. The GetCursor and GetLogs API operations are included in the log:GetCursorOrData API operation.

Operation	Resource
log:GetCursorOrData	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}
log:ListShards	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}
log:PostLogStoreLogs	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logstore/${logstoreName}

Configuration authentication rules

Operation	Resource
log:CreateConfig	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/*
log:UpdateConfig	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName}

Operation	Resource
log:DeleteConfig	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName}
log:GetConfig	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName}
log:ListConfig	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/*

Machine group authentication rules

Operation	Resource
log:CreateMachineGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/*
log:UpdateMachineGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}
log:DeleteMachineGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}
log:GetMachineGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}
log:ListMachineGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/*
log:ListMachines	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}

Interactive API operations for configurations and machine groups

Operation	Resource
log:ApplyConfigToGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName} acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}

Operation	Resource
log:RemoveConfigFromGroup	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName} acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}
log:GetAppliedMachineGroups	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/logtailconfig/${logtailConfigName}
log:GetAppliedConfigs	acs:log:${regionName}:${projectOwnerAliUid}:project/${projectName}/machinegroup/${machineGroupName}

20.1.1.12. Description of common resources

20.1.1.12.1. Encrypt data

Log Service allows you to use Key Management Service (KMS) to encrypt data for secure storage. This topic describes the data encryption mechanism of Log Service and how to encrypt data by using KMS.

Data encryption mechanism

Log Service encrypts data by using KMS. The data encryption mechanism has the following characteristics:

- Log Service supports the Advanced Encryption Standard (AES) encryption algorithm.和国密算法SM4
- You can create and manage a customer master key (CMK) in the KMS console to ensure the security of the CMK.
- Log Service supports the following encryption types:
  - Service key-based encryption: Log service generates an independent service key for each Logstore. The service key never expires.
  - Bring Your Own Key (BYOK) encryption: You can create a CMK in the KMS console and grant the relevant permissions to Log Service. When Log Service calls a KMS API operation, this CMK is used to create a key for data encryption. If the CMK is deleted or disabled, the BYOK key becomes invalid.

Notice

- You can configure data encryption for a Logstore only when you call the CreateProject operation to create the Logstore. The algorithm or type of data encryption cannot be changed after the Logstore is created.
- If the CMK created in the KMS console becomes invalid, all read and write requests on the Logstore fail.
- The CMK generated by the service key of Log Service does not rotate.

Service key-based encryption

When you call the CreateProject operation to create a Logstore, add the encrypt_conf node to encrypt data by using the following sample code:

```
encrypt_conf = {
    "enable" : True, # If you set the value to True, data encryption is enabled.
    "encrypt_type": "aes_gcm", # The encryption algorithm. You can set the value tosm4_gcm
或aes_gcm.
}
```

Bring Your Own Key (BYOK) encryption

1. In the KMS console, create a BYOK.

   For more information, see the **Key Management Service (KMS) > Create a CMK** topic in *User Guide*.

2. Create a level -1 organization.

   i. Log on to the Apsara Uni-manager Management Console. For more information, see the **User Guide > Log on to the Apsara Uni-manager Management Console** topic.

   ii. Creates an organization. For more information, see the **User Guide > Enterprise > Organizations > Create an organization** topic in *User Guide*.

3. Create a RAM role for a level -1 organization.

   i. In the top navigation bar of the Apsara Uni-manager Management Console, click **Configurations**.

   ii. On the **RAM Service Linked Role** tab, click **Create RAM Role**.

   iii. In the **Organization Name** drop-down list, select the created organization. In the **Service Name** drop-down list, select **Log Service**, and click **OK**.

   iv. On the **RAM Service Linked Role** page, find the AliyunLogAccessingKMSRole service role, and click **Details** to obtain the ARN of the RAM role.

4. When you call the CreateProject operation to create a Logstore, add the encrypt_conf node to encrypt data by using the following sample code:

```
encrypt_conf = {
    "enable" : True, # If you set the value to True, data encryption is enabled.
    "encrypt_type": "aes_gcm", # The encryption algorithm. You can set the value tosm4_
gcm或aes_gcm.
    "user_cmk_info":
        {
            "cmk_key_id": "", # The ID of the CMK that you created in Step 1.
            "arn": "", # The ARN of the RAM role that is obtained in Step 3.
            "region_id" : ""# The ID of the region where the CMK resides.
        }
}
```

20.1.1.12.2. Data model

This topic describes the data model of Log Service.

Project

A project is a basic management unit in Log Service and is used to isolate and control resources. You can use a project to manage all logs and log sources of an application.

Logstore

A Logstore is a unit that collects, stores, and consumes logs in Log Service. Each Logstore belongs to a single project. Each project can have multiple Logstores. You can create multiple Logstores for a project based on your business requirements. We recommend that you create an independent Logstore for each type of logs in an application. For example, you have a game application named big-game. The server stores three types of logs: operation_log, application_log, and access_log. You can create a project named big-game and then create three Logstores in the project to collect, store, and query the three types of logs.

Log

A log is the minimum data unit that is processed in Log Service. Log Service uses a semi-structured data model to define a log. The data model is as follows:

- Topic: a user-defined field that marks multiple logs. For example, access logs can be marked based on the sites. This field is an empty string by default. An empty string is also a valid topic.
- Time: a reserved field in a log, used to indicate the time when the log is generated. This value is a Unix timestamp representing the number of seconds that have elapsed since the epoch time January 1, 1970, 00:00:00 UTC.
- Content: a field that records the content of a log. The content consists of one or more content items. Each content item is a key-value pair.
- Source: a field that indicates the source of a log, for example, the IP address of the machine where the log is generated. This field is empty by default.

The following table describes the requirements for the values of these fields.

Log fields

Field	Requirement
time	An integer in the Unix timestamp format. Unit: seconds.

Field	Requirement
topic	A UTF-8 encoded string of up to 128 characters.
source	A UTF-8 encoded string of up to 128 characters.
content	One or more key-value pairs. A key is a UTF-8 encoded string of up to 128 characters. It can contain only letters, underscores (_), and digits. It cannot start with a digit. A value is a UTF-8 encoded string of up to 1,048,576 (1024 × 1024) bytes.

Note The key in the content field cannot be any of the following keywords: `__time__`, `__source__`, `__topic__`, `__partition_time__`, and `_extract_others_`.

Topic

Logs in a Logstore can be grouped by topics. Topics can be specified when you write logs to a Logstore. For example, you can use your user ID as the topic of a log when you write the log to a Logstore. If you do not need to group logs in a Logstore, you can specify the same topic for all logs.

Note An empty string is a valid topic. The topic of a log is an empty string by default.

Logs are used in various formats in actual scenarios. The following example shows how to map a raw NGINX access log to the log data model of Log Service. In this example, the IP address of your NGINX server is 10.10.10.1. A raw log on this server is as follows:

```
10.1.1.1 - - [01/Mar/2012:16:12:07 +0800] "GET /Send? AccessKeyId=<yourAccessKeyId> HTTP/1.
1" 200 5 "-" "Mozilla/5.0 (X11; Linux i686 on x86_64; rv:10.0.2) Gecko/20100101 Firefox/10.
0.2"
```

The following table describes how to map the raw log to the log data model of Log Service.

Log data model of Log Service

Field	Field value	Description
topic	“”	The default value (empty string) is used.
time	1330589527	The time when the log was generated. The time is converted from the timestamp of the raw log. Unit: seconds.
source	“10.10.10.1”	The IP address of the server is used as the log source.
content	Key-value pair	The content of the log.

You can decide how to extract the raw log content and combine the extracted content into key-value pairs. The following table describes custom key-value pairs.

Custom key-value pairs

Key	Value
ip	“10.1.1.1”
method	“GET”
status	“200”
length	“5”
ref_url	“- “
browser	“Mozilla/5.0 (X11; Linux i686 on x86_64; rv:10.0.2) Gecko/20100101 Firef

LogGroup

A group of logs.

Logs

A collection of multiple logs.

LogGroupList

A collection of log groups that are used to return results.

Encoding method

The following table describes the content encoding method that is supported by Log Service. The RESTful API layer is indicated by Content-Type.

Supported encoding method

Encoding method	Content-Type	Description
ProtoBuf	The data model is encoded by Protocol Buffer.	application/x-protobuf

The following sample code shows how to use Protocol Buffer to define the objects in the data model:

```
message Log
{
    required uint32 Time = 1;// Unix time format
    message Content
    {
        required string Key = 1;
        required string Value = 2;
    }
    repeated Content Contents= 2;
}
message LogGroup
{
    repeated Log Logs= 1;
    optional string Reserved = 2; // Reserved fields
    optional string Topic = 3;
    optional string Source = 4;
}
message LogGroupList
{
    repeated LogGroup logGroupList = 1;
}
```

Note When you use the Protocol Buffer format, key-value pairs must be unique. Otherwise, an undefined behavior occurs.

20.1.1.12.3. Data encoding

Log Service uses Protocol Buffer as the standard log format. You can write logs to Log Service in the Protocol Buffer format.

Protocol Buffer is used as a format to interchange structured data. Before you write logs to Log Service by calling relevant API operations, you must serialize raw log data to Protocol Buffer data streams as follows:

```
message Log
{
    required uint32 time = 1; // UNIX Time Format
    message Content
    {
        required string key = 1;
        required string value = 2;
    }
    repeated Content contents= 2;
}
message LogGroup
{
    repeated Log logs= 1;
    optional string reserved =2; // An internal field. You do not need to specify this fiel
d.
    optional string topic = 3;
    optional string source = 4;
}
message LogGroupList
{
    repeated LogGroup logGroupList = 1;
}
```

Note

- When you use the Protocol Buffer format, key-value pairs must be unique. Otherwise, an undefined behavior occurs.
- For more information about the Protocol Buffer format, visit GitHub.
- For more information about the API operations that write logs to Log Service, see PostLog.

20.1.1.12.4. Logstores

A Logstore is a data storage unit. You can create up to 10 Logstores for each project by default. The name of a Logstore must be unique in the project to which the Logstore belongs. A Logstore is the portal for all log data. You can read data from or write data to the Logstore.

The naming rules for Logstores are as follows:

- The name can only contain lowercase letters, digits, hyphens (-), and underscores (_).
- The name must start and end with a lowercase letter or a digit.
- The name must be 2 to 63 characters in length.

Example

```
{
    "logstoreName" : "access_log",
    "ttl": 1,
    "shardCount": 2,
    "createTime":1439538649,
    "lastModifyTime":1439538649
}
```

The following table describes the Logstore parameters.

Logstore parameters

Parameter	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore. The name must be unique in the project to which the Logstore belongs.
ttl	Integer	Yes	The time to live (TTL) of log data. Unit: days. Minimum value: 1.
shardCount	Integer	Yes	The number of shards in the Logstore.
createTime	Integer	No	The time when the Logstore was created in Log Service. This parameter is displayed only in the output result.
lastModifyTime	Integer	No	The time when the Logstore is updated in Log Service. This parameter is displayed only in the output result.

20.1.1.12.5. Shards

A shard is a basic read/write unit in each Logstore. You can specify the number of shards in each Logstore.

To read data from a shard, you must specify the shard. To write data to a shard, you do not need to specify the shard. Instead, you can use the load balancing mode. In this mode, data is written to multiple shards based on automatic balancing. This ensures high availability of the write operation.

The following table describes the parameters of a shard.

Shard parameters

Parameter	Type	Required	Description
shardID	Integer	Yes	The unique ID of a shard in the Logstore. The shard ID is automatically generated by the system.

20.1.1.12.6. Logtail configurations

You can create up to 100 Logtail configurations for a project. The name of a Logtail configuration must be unique in a project.

You can use a Logtail configuration to specify the location, method, and parameters for log collection.

The naming rules for Logtail configurations are as follows:

- The name can only contain lowercase letters, digits, hyphens (-), and underscores (_).

- The name must start and end with a lowercase letter or a digit.
- The name must be 2 to 128 characters in length.

Example

```
{
    "configName": "testcategory1",
    "inputType": "file",
    "inputDetail": {
        "logType": "common_reg_log",
        "logPath": "/var/log/httpd/",
        "filePattern": "access.log",
        "localStorage": true,
        "timeFormat": "%Y/%m/%d %H:%M:%S",
        "logBeginRegex": ".*",
        "regex": "(\w+)(\s+)",
        "key" :["key1", "key2"],
        "filterKey":["key1"],
        "filterRegex":["regex1"],
        "topicFormat": "none"
    },
    "outputType": "sls",
    "outputDetail":
    {
        "logstoreName": "perfcounter"
    },
    "createTime": 1400123456,
    "lastModifyTime": 1400123456
}
```

The following table describes the configuration parameters.

Configuration parameters

Parameter	Type	Required	Description
configName	String	Yes	The name of the Logtail configuration. The name must be unique in a project.
inputType	String	Yes	The input type. Default value: file.
inputDetail	json	Yes	See the following table.
outputType	String	Yes	The output type. Only LogService is supported.
outputDetail	String	Yes	See the following table.
createTime	Integer	No	The time when the Logtail configuration was created.

Parameter	Type	Required	Description
lastModifyTime	Integer	No	The time when the Logtail configuration was last updated on Log Service.

The following table describes the elements of the inputDetail parameter.

inputDetail elements

Element	Type	Required	Description
logType	String	Yes	The log type. Valid value: common_reg_log.
logPath	String	Yes	The parent directory where the log resides, for example, `/var/logs/`.
filePattern	String	Yes	The pattern of the log file, for example, `access*.log`.
localStorage	Boolean	Yes	Specifies whether to enable the local cache. Logs up to 1 GB can be locally cached when the link to Log Service is disconnected.
timeFormat	String	Yes	The format of the log time, for example, `%Y/%m/%d %H:%M:%S`.
logBeginRegex	String	Yes	The regular expression that specifies the pattern of the first line of a log. This parameter is applicable to multiline logs.
regex	String	Yes	The regular expression that is used to extract logs.
key	Array	Yes	The key that is generated after logs are extracted.
filterKey	Array	Yes	The key that is used to filter logs. A log meets the requirements only when the key value matches the regular expression specified in the corresponding filterRegex column.

Element	Type	Required	Description
filterRegex	Array	Yes	The regular expression that is specified for each filterKey. The length of filterRegex must be the same as that of filterKey.
topicFormat	String	No	Specifies part of the log file path as the topic, for example, `/var/log/(. *).log`. The default value is none, indicating that the topic is null.
preserve	Boolean	No	Valid values: true and false. The value true indicates that the directory monitoring never times out. The value false indicates that the timeout period for directory monitoring is 30 minutes. Default value: true.
preserveDepth	Integer	No	Specifies the depth of the monitored directories if the preserve parameter is set to false. Maximum value: 3.

The following table describes the elements of the outputDetail parameter.

outputDetail elements

Element	Type	Required	Description
logstoreName	String	Yes	The name of the Logstore.

20.1.1.12.7. Logtail machine group

After a machine with Logtail is started, the machine is automatically associated with the user specified in the Logtail configurations. The machine can be identified by using the following three methods:

- IP address: the IP address corresponding to the hostname. This is the simplest method, but the IP address may be duplicated in environments such as Virtual Private Cloud (VPC).
- Universally unique identifier (UUID): the UUID of the desktop management interface (DMI) device. For more information, visit RFC 4122.
- User-defined ID: the user-defined machine identifier in the Logtail directory.

The attributes of each machine are as follows:

```
{
    "ip" : "testip1",
    "machine-uniqueid" : "testuuid1",
    "userdefined-id" : "testuserdefinedid1",
    "lastHeartbeatTime”:1397781420
 }
```

The following table describes the machine attribute parameters.

Parameters

Parameter	Type	Description
ip	String	The IP address corresponding to the machine hostname.
machine-uniqueid	String	The unique primary key marked by the machine. The primary key is uploaded by Logtail.
userdefined-id	String	The user-defined machine identifier that is uploaded by Logtail.
lastHeartbeatTime(output-only)	Integer	The last heartbeat time of the machine. The value is a Unix timestamp representing the number of seconds that have elapsed since the epoch time.

machinegroup

The machinegroup parameter indicates the machine group that belongs to the current user in the project. The machine group can be identified by an IP address or user-defined ID. IP addresses are more easily identified than user-defined IDs. However, user-defined IDs can identify machine groups in VPC even when repeated IP addresses exist. You can select either of the two machine identification methods based on your business requirements.

The naming rules of machine groups are as follows:

- The name can contain only lowercase letters, digits, hyphens (-), and underscores (_).
- The name must start and end with a lowercase letter or digit.
- The name must be 2 to 128 characters in length.

Example

```
{
    "groupName" : "testgroup",
    "groupType" : "",
    "groupAttribute" : {
        "externalName" : "testgroup",
        "groupTopic": "testgrouptopic"
    },
    "machineIdentifyType": "ip",
    "machineList" : [
        "ip1",
        "ip2"
        ...
    ],
    "createTime": 1431705075,
    "lastModifyTime" : 1431705075
}
```

The following table lists the parameters of a machine group.

Machine group parameters

Parameter	Type	Required	Description
groupName	String	Yes	The name of the machine group. The name must be unique in a project.
groupType	String	No	The type of the machine group. Default value: null.
machineIdentifyType	String	Yes	The machine identification type. Valid values: ip or userdefined-id.
groupAttribute	object	Yes	The attribute of the machine group. Default value: null.
machineList	Array	Yes	The list of machine identifiers. Valid values: IP addresses or user-defined identifiers.
createTime(output-only)	Integer	No	The time when the machine group was created.
lastModifyTime(output-only)	Integer	No	The time when the machine group was last updated on Log Service.

The following table describes the parameters of groupAttribute.

groupAttribute parameters

Parameter	Type	Required	Description
groupTopic	String	No	The topic of the machine group. Default value: null.
externalName	String	No	The external management identifier on which the machine group depends. Default value: null.

20.1.2. SDK Reference

20.1.2.1. Introduction

20.1.2.1.1. Overview

Log Service provide software development kits (SDKs) for multiple languages, such as Java, .NET, Python, PHP, and C. You can select an SDK based on your business requirements.

Log Service SDKs are implemented based on Log Service APIs. Log Service SDKs provide the same capabilities as Log Service APIs. For more information about Log Service APIs, see API Reference.

Before you can use a Log Service SDK, you must have an active Alibaba Cloud AccessKey pair (AccessKey ID and AccessKey secret).

In addition, you must specify the endpoint of Log Service in the SDK. For more information, see Basic configurations.

Log Service SDKs can be regarded as Log Service APIs that are encapsulated in different languages to provide the following features:

- Uniform encapsulation. Log Service APIs are uniformly encapsulated. You do not need to create API requests and parse API responses. For more information, see API specifications. The APIs in different languages are similar. This simplifies the switchover between different languages.
- Automatic digital signatures. You do not need to specify the digital signature logic of Log Service APIs. This simplifies the use of Log Service APIs.
- Protocol Buffer-formatted encapsulation. The logs collected by Log Service are encapsulated in the Protocol Buffer format. You do not need to specify the format.
- Automatic compression. Logs are compressed by using the method defined in Log Service APIs. You do not need to manually compress logs. SDKs in some languages allow you to specify whether to write logs in the compression mode. The compression mode is used by default.
- Centralized error handling methods. You can use SDKs to handle errors based on the relevant language. For more information, see Error handling.
- Synchronous requests. SDKs in all languages support only synchronous requests.

The following table describes the download address and user guide of Log Service SDKs in different languages.

SDK language	Documentation	Source code
Java	SDK for Java and Log Service SDK for Java 0.6.0 API	GitHub

SDK language	Documentation	Source code
.NET	SDK for .NET and Aliyun.Api.SLS Namespace	GitHub
PHP	SDK for PHP and SLS_PHP_SDK	GitHub
Node.js	SDK for Node.js	GitHub
Python	SDK for Python and Python documentation	GitHub
C	SDK for C	GitHub
GO	SDK for Go	GitHub
iOS	SDK for iOS	GitHub
Android	SDK for Android	GitHub
C++	SDK for C ++	GitHub

20.1.2.1.2. Basic configurations

Before you can use SDKs to interact with Log Service, you must configure the basic settings. This topic describes the basic SDK configurations.

Basic configurations:

- Endpoint: You must specify the endpoint that is used by the client to access Log Service.
- AccessKey pair (AccessKey ID and AccessKey secret): You must specify the AccessKey pair that is used by the client to access Log Service.

The following sections describe how to use endpoints and AccessKey pairs.

Endpoint

Before you use an SDK, you must determine the access method and endpoint.

1. When you select an endpoint for a client instance, make sure that the region of your project is the same as the region of your endpoint. Otherwise, you cannot use the SDK to access your project.
2. All API endpoints support only the HTTP protocol.

AccessKey pairs

All interaction requests that are sent to Log Service must be authenticated. An AccessKey pair that consists of an AccessKey ID and AccessKey secret is the critical factor for the authentication. When you create a client instance, you must specify an AccessKey ID and AccessKey secret. You must obtain an AccessKey pair in the Apsara Uni-manager Management Console.

> **Note**
>
> - An Apsara Stack tenant account can have multiple AccessKey pairs. You must specify the AccessKey ID and AccessKey secret of the same AccessKey pair when you create a client instance. Otherwise, authentication fails.
> - The specified AccessKey must be in the Enabled state. Otherwise, the requests are denied by Log Service. To view the status of the AccessKey pair, you can log on to the Apsara Uni-manager Management Console.

Examples

Assume that you want to access a project and you have an AccessKey pair that is in the Enabled state. The following AccessKey pair is used:

```
AccessKeyId = "<yourAccessKeyId>"
AccessKeySecret = "<yourAccessKeySecret>"
```

You can use the following snippets to create a client instance based on the language:

- Java

```
String endpoint = "regionid.example.com"; // Specify the endpoint based on your region an
d access method.
String accessKeyId = "<youraccessKeyId>"; // Specify your AccessKey ID.
String accessKeySecret = "<youraccessKeySecret>"; // Specify your AccessKey secret.
Client client = new Client(endpoint, accessKeyId, acccessKeySecret);
//use client to operate log service project......
```

- .NET(C#)

```
String endpoint = "regionid.example.com"; // Specify the endpoint based on your region an
d access method.
String accessKeyId = "<youraccessKeyId>"; // Specify your AccessKey ID.
String accessKeySecret = "<youraccessKeySecret>"; // Specify your AccessKey secret.
SLSClient client = new SLSClient(endpoint, accessKeyId, accessKeySecret);
//use client to operate sls project......
```

- PHP

```
$endpoint = 'regionid.example.com'; // The endpoint of the China (Hangzhou) region is use
d as an example. Replace it with the actual endpoint based on your region and access meth
od.
$accessKeyId = '<youraccessKeyId>'; // Specify your AccessKey ID.
$accessKey = '<youraccessKey>'; // Specify your AccessKey secret.
$client = new Aliyun_Sls_Client($endpoint, $accessKeyId, $accessKey);
//use client to operate sls project......
```

- Python

```
# // Specify the endpoint based on your region and access method.
endpoint = 'regionid.example.com'
# Specify your AccessKey ID.
accessKeyId = '<youraccessKeyId>'
# Specify your AccessKey secret.
accessKey = '<youraccessKey>'
client = LogClient(endpoint, accessKeyId, accessKey)
#use client to operate log project......
```

20.1.2.1.3. Error handling

SDK errors are divided into the following types:

- Errors returned by Log Service. Errors of this type are handled by SDKs. For more information about this error type, see the common error codes of the Log Service API operations.
- Network errors that occur when you send requests to the server by using SDKs. This type of errors include network disconnection and server response timeout.
- Errors that are generated by SDKs and related to platforms or languages, for example, memory overflows.

All SDKs provided by Alibaba Cloud handle errors by throwing exceptions based on the following principles:

- The first and second types of errors are encapsulated as the LogException class and sent to users by SDKs.
- The third type of errors are not handled by SDKs, but are sent to users as the platform-specific and language-specific NativeException class.

LogException

The LogException class is defined by SDKs to handle the logical errors of Log Service. This class inherits the base class for all exceptions from each language, and provides the following exception information:

- Error code: indicates the error type. For an error returned by Log Service when you use an SDK, the error code is the same as that returned by the relevant API operation. The error code of SDK network request errors is RequestError. For more information, see API Reference.
- Error message: indicates the message that is returned together with an error. For an error returned by Log Service when you use an SDK, the error message is the same as that returned by the relevant API operation. The error message of network errors is "request is failed". For more information, see the relevant API reference.
- Request ID: indicates the ID of the request for which the current error is returned. The request ID is generated by Log Service. This ID is returned only when an error message is returned by Log Service. Otherwise, an empty string is returned. If you receives a request error, you can provide the relevant request ID to the Log Service team for troubleshooting.

Request failures and retries

When you use an SDK to access Log Service, the access request may fail due to temporary network disconnection, transmission delay, and slow server response. These errors are sent as exceptions. Log Service does not implement retry logic. When you use the SDK, you must customize the handling logic, for example, retry the request or report an error.

Examples

For example, you want to access a project named big-game and retry the access request for a specified number of times in the case of network exceptions. You can use the following snippets based on the language:

- Java

```
// Other code...
String accessId = "<youraccessId>";   // Specify your AccessKey ID.
String accessKey = "<youraccessKey>"; // Specify your AccessKey secret.
String project = "big-game";
String endpoint = "regionid.example.com";
int max_retries = 3;
/*
 * Create a client.
 */
Client client = new Client(accessId, accessKey, endpoint);
ListLogStoresRequest lsRequest = new ListLogStoresRequest(project);
for (int i = 0; i < max_retries; i++)
{
    try
    {
        ListLogStoresResponse res = client.ListLogStores(lsRequest)
        // Process the returned data...
        break;
    }
    catch(LogException ex)
    {
        if (e.GetErrorCode() == "RequestError")
        {
            if ( i == max_retries - 1)
            {
                System.out.println("request is still failed after all retries.");
                break;
            }
            else
                System.out.println("request error happens, retry it!") ;
        }
        else
        {
            System.out.println("error code :" + e.GetErrorCode());
            System.out.println("error message :" + e.GetErrorMessage());
            System.out.println("error requestId :" + e.GetRequestId());
            break;
        }
    }
    catch(...)
    {
        System.out.println("unrecoverable exception when listing logstores.");
        break;
    }
}
// Other code...
```

- .NET(C#):

```
// Other code...
String accessId = "<youraccessId>";     // Specify your AccessKey ID.
String accessKey = "<youraccessKey>";    // Specify your AccessKey secret.
String project = "big-game";
String endpoint = "regionid.example.com";
int max_retries = 3;
// Create a client.
SLSClient client = new SLSClient(endpoint, accessId, accessKey);
ListLogstoresRequest request = new ListLogstoresRequest();
request.Project = project;
for (int i = 0; i < max_retries; i++)
{
    try
    {
        ListLogstoresResponse response = client.ListLogstores(request);
        // Process the returned data...
        break;
    }
    catch(LogException ex)
    {
        if (e.errorCode == "SLSRequestError")
        {
            if ( i == max_retries - 1)
            {
                Console.Writeline("request is still failed after all retries.");
                break;
            }
            else
            {
                Console.Writeline("request error happens, retry it!") ;
            }
        }
        else
        {
            Console.Writeline("error code :" + e.errorCode;
            Console.Writeline("error message :" + e.Message;
            Console.Writeline("error requestId :" + e.RequestId;
            break;
        }
    }
    catch(...)
    {
        Console.Writeline("unrecoverable exception when listing logstores.");
        break;
    }
}
// Other code...
```

- PHP

```
<? php
// Other code...
$endpoint = 'regionid.example.com';
$accessId = '<youraccessId>'; // Specify your AccessKey ID.
$accessKey = '<youraccessKey>'; // Specify your AccessKey secret.
$maxRetries = 3;
// Create a Log Service client.
$client = new Aliyun_Sls_Client($endpoint, $accessId, $accessKey);
$project = 'big-game';
$request = new Aliyun_Sls_Models_ListLogstoresRequest($project);
for($i = 0; $i < $maxRetries; ++$i)
{
    try
    {
        $response = $client->ListLogstores($request);
        // Process the returned data...
        break;
    }
    catch (Aliyun_Sls_Exception $e)
    {
        if ($e->getErrorCode()=='RequestError')
        {
            if ($i+1 == $maxRetries)
            {
                echo "error code :" . $e->getErrorCode() . PHP_EOL;
                echo "error message :" . $e->getErrorMessage() . PHP_EOL;
                break;
            }
            echo 'request error happens, retry it!' . PHP_EOL;
        }
        else
        {
            echo "error code :" . $e->getErrorCode() . PHP_EOL;
            echo "error message :" . $e->getErrorMessage() . PHP_EOL;
            echo "error requestId :" . $e->getRequestId() . PHP_EOL;
            break;
        }
    }
    catch (Exception $ex)
    {
        echo 'unrecoverable exception when listing logstores.' . PHP_EOL;
        var_dump($ex);
        break;
    }
}
// Other code...
```

- Python

```
// Other code...
endpoint = 'regionid.example.com'
accessId = '<youraccessId>' # Specify your AccessKey ID.
accessKey = '<youraccessKey>' # Specify your AccessKey secret.
maxRetries = 3
# Create a client.
client = Client(endpoint, accessId, accessKey)
project = 'big-game'
lsRequest = ListLogstoresRequest(project)
for i in xrange(maxRetries):
    try:
        res = client.ListLogstores(lsRequest)
        # Process the returned data...
        break
    except LogException as e:
        if e.getErrorCode() == "RequestError":
            if i+1 == maxRetries:
                print "error code :" + e.getErrorCode()
                print "error message :" + e.getErrorMessage()
                break
            else:
                print "request error happens, retry it!"
        else:
            print "error code :" + e.getErrorCode()
            print "error message :" + e.getErrorMessage()
            print "error requestId :" + e.getRequestId()
            break
    except Exception as e:
        print 'unrecoverable exception when listing logstores.'
        break
// Other code...
```

20.1.2.1.4. API specifications

SDKs in different languages are implemented in different methods. However, all relevant API operations comply with the request-response principle. These API operations are called by using the following procedure:

1. Create a request instance by using request parameters.
2. Call the corresponding API operation in the SDK and pass the API information to the request instance.
3. Encapsulate the results returned by the SDK interface into a response instance and then return the response instance to the user.

The following snippets show how to obtain the names of all Logstores in a project based on the preceding steps.

Java

```
// Other code...
String accessId = "<youraccessId>";     // Specify your AccessKey ID.
String accessKey = "<youraccessKey>";   // Specify your AccessKey secret.
String project = "your_project";        // Specify your project name.
String endpoint = "region_endpoint";// The China (Hangzhou) region is used as an example. S
pecify the endpoint based on your region and access method.
// Create a client instance.
Client client = new Client(endpoint, accessId, accessKey);
// Specify the project request parameter to initialize the ListLogstores request class.
ListLogStoresRequest lsRequest = new ListLogStoresRequest(project);
// Use the request instance to call the ListLogstores API operation. The returned parameter
is the corresponding response instance.
ListLogStoresResponse res = client.ListLogStores(lsRequest);
// Access the response instance to retrieve the request results.
ArrayList<String> names = res.GetLogStores();
// Other code...
```

.NET(C#)

```
// Other code...
String accessId = "<youraccessId>";     // Specify your AccessKey ID.
String accessKey = "<youraccessKey>";   // Specify your AccessKey secret.
String project = "your_project";        // Specify your project name.
String endpoint = "region_endpoint";// The China (Hangzhou) region is used as an example. S
pecify the endpoint based on your region and access method.
// Create a client instance.
SLSClient client = new SLSClient(endpoint, accessId, accessKey);
// Specify the project request parameter to initialize the ListLogstores request class.
ListLogStoresRequest lsRequest = new ListLogStoresRequest();
lsRequest.Project = project;
// Use the request instance to call the ListLogstores API operation. The returned parameter
is the corresponding response instance.
ListLogStoresResponse res = client.ListLogStores(lsRequest);
// Access the response instance to retrieve the request results.
List<String> names = res.Logstores;
// Other code...
```

PHP

```
// Other code...
$accessId = "<youraccessId>";     // Specify your AccessKey ID.
$accessKey = "<youraccessKey>";   // Specify your AccessKey secret.
$project = "your_project";        // Specify your project name.
$endpoint = "region_endpoint";// The China (Hangzhou) region is used as an example. Specify
the endpoint based on your region and access method.
//Create a Log Service client instance.
$client = new Aliyun_Sls_Client($endpoint, $accessId, $accessKey);
// Specify the project request parameter to initialize the ListLogstores request class.
$request = new Aliyun_Sls_Models_ListLogstoresRequest($project);
// Use the request instance to call the ListLogstores API operation. The returned parameter
is the corresponding response instance.
$response = $client->listLogstores($request);
// Access the response instance to retrieve the request results.
$names = $response->getLogstores();
// Other code...
```

Python

```
// Other code...
accessId = '<youraccessId>';     // Specify your AccessKey ID.
accessKey = '<youraccessKey>';   // Specify your AccessKey secret.
project = 'your_project';        // Specify your project name.
endpoint = 'region_endpoint';// The China (Hangzhou) region is used as an example. Specify
the endpoint based on your region and access method.
# Create a client instance.
client = LogClient(endpoint, accessId, accessKey)
# Specify the project request parameter to initialize the ListLogstores request class.
lsRequest = ListLogstoresRequest(project)
# Use the request instance to call the ListLogstores API operation. The returned parameter
is the corresponding response instance.
res = client.list_logstores(lsRequest)
# Access the response instance to retrieve the request results.
names = res.get_logstores();
// Other code...
```

The Log Service SDKs implement multiple API operations such as ListLogStores, and define the corresponding request and response classes. The Log Service SDKs of different languages also provide secondary APIs encapsulated with these basic request-response APIs. You do not need to create request instances or parse the content of the response. For more information about the secondary interfaces, see the API reference of each SDK.

20.1.2.2. Java SDK

Log Service SDK for Java allows Java developers to perform operations in Log Service by using Java programs. You can use Maven dependencies to add the SDK. You can also download the SDK package to an on-premises server.

Download URL

Log Service SDK for Java supports J2SE V6.0 and later. Click here to download the latest SDK.

Step 1: Create an Apsara Stack tenant account

To access Log Service, you must create an account in the Apsara Uni-manager Management Console.

Step 2: Obtain an Apsara Stack AccessKey pair

To use Log Service SDK for Java, you must obtain an AccessKey pair.

Log on to the Apsara Uni-manager Management Console. Select an AccessKey pair for the SDK.

The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use an AccessKey pair in Log Service SDK for Java, see Basic configurations.

Step 3: Create a project and a Logstore in the Log Service console

Use Log Service SDK for Java to create a project and a Logstore.

> **Note**
>
> - The account that you use to create the project and the Logstore must be the same as the account that you used to obtain the AccessKey pair.
> - The project name must be unique in Log Service. The Logstore name must be unique in the project.
> - After you create the project, you cannot modify its region or migrate the project across regions.

Step 4: Install a Java development environment

Log Service SDK for Java supports Java development environment J2SE V6.0 and later. You can visit the Java official website to download and install the Java development environment.

Step 5: Install Log Service SDK for Java

After you install the Java development environment, you must install Log Service SDK for Java. To install Log Service SDK for Java, use one of the following methods:

Download the latest SDK for Java package from Apache Maven. Add the following configurations to your Maven project:

```
<dependency>
         <groupId>com.google.protobuf</groupId>
         <artifactId>protobuf-java</artifactId>
         <version>2.5.0</version>
</dependency>
<dependency>
<groupId>com.aliyun.openservices</groupId>
<artifactId>aliyun-log</artifactId>
<version>0.6.7</version>
<exclusions>
        <exclusion>
            <groupId>com.google.protobuf</groupId>
            <artifactId>protobuf-java</artifactId>
       </exclusion>
</exclusions>
</dependency>
```

Download Log Service SDK for Java package, and then reference the local package in your Java project.

1. Download Log Service SDK for Java package. Log Service SDK for Java is periodically updated. You can use Maven to obtain the latest version.
2. Decompress the downloaded package to a specified directory. Log Service SDK for Java does not require installation.
3. Add all JAR packages (including third-party dependent packages) in the SDK package to your Java project. For more information, see the relevant documents about integrated development environment (IDE).

Step 6: Start a new Java project

The following sample code shows how to use Log Service SDK for Java. To interact with Log Service and obtain the relevant output, run the following sample code in a text editor or Java IDE:

```
package sdksample;
import java.util.ArrayList;
import java.util.List;
import java.util.Vector;
import java.util.Date;
import com.aliyun.openservices.log.Client;
import com.aliyun.openservices.log.common.*;
import com.aliyun.openservices.log.exception.*;
import com.aliyun.openservices.log.request.*;
import com.aliyun.openservices.log.response.*;
import com.aliyun.openservices.log.common.LogGroupData;
import com.aliyun.openservices.log.common.LogItem;
import com.aliyun.openservices.log.common.Logs.Log;
import com.aliyun.openservices.log.common.Logs.Log.Content;
import com.aliyun.openservices.log.common.Logs.LogGroup;
import com.aliyun.openservices.log.common.Consts.CursorMode;
public class sdksample {
    public static void main(String args[]) throws LogException, InterruptedException {
        String endpoint = "<log_service_endpoint>"; // Select the endpoint that matches the
region of the project created in the preceding steps.
        // Endpoint
        String accessKeyId = "<youraccessKeyId>"; // Use your AccessKey ID.
        String accessKeySecret = "<youraccessKeySecret>"; // Use your AccessKey secret.
        // AccessKeySecret
        String project = "<project_name>"; // The name of the project created in the preced
ing steps.
        String logstore = "<logstore_name>"; // The name of the Logstore created in the pre
ceding steps.
        // Create a client instance.
        Client client = new Client(endpoint, accessKeyId, accessKeySecret);
        // List all Logstores in the current project.
        int offset = 0;
        int size = 100;
        String logStoreSubName = "";
        ListLogStoresRequest req1 = new ListLogStoresRequest(project, offset, size, logStor
eSubName);
        ArrayList<String> logStores = client.ListLogStores(req1).GetLogStores();
        System.out.println("ListLogs:" + logStores.toString() + "\n");
        // Write logs.
```

```
        String topic = "";
        String source = "";
        // Send 10 packets. Each packet contains 10 log entries.
        for (int i = 0; i < 10; i++) {
            Vector<LogItem> logGroup = new Vector<LogItem>();
            for (int j = 0; j < 10; j++) {
                LogItem logItem = new LogItem((int) (new Date().getTime() / 1000));
                logItem.PushBack("index"+String.valueOf(j), String.valueOf(i * 10 + j));
                logGroup.add(logItem);
            }
            PutLogsRequest req2 = new PutLogsRequest(project, logstore, topic, source, logG
roup);
            client.PutLogs(req2);
            /*
             * You can specify a shard to which data is sent.
             * After you set a hash key, data is written to the shard whose MD5 value range
includes the hash key. For more information, see the API operation PutLogsResponse.
             * PutLogs( String project, String logStore, String topic,
             * List<LogItem> logItems, String source, String shardHash //
             * Write data to the shard based on the hash key, which can be MD5(ip) or MD5(i
d).
             */
        }
        // Read the data that was written to shard 0 in the last minute.
        int shard_id = 0;
        long curTimeInSec = System.currentTimeMillis() / 1000;
        GetCursorResponse cursorRes = client.GetCursor(project, logstore, shard_id, curTime
InSec - 60);
        String beginCursor = cursorRes.GetCursor();
        cursorRes = client.GetCursor(project, logstore, shard_id, CursorMode.END);
        String endCursor = cursorRes.GetCursor();
        String curCursor = beginCursor;
        while (curCursor.equals(endCursor) == false) {
            int loggroup_count = 2; // Read two log groups at a time.
            BatchGetLogResponse logDataRes = client.BatchGetLog(project, logstore, shard_id
, loggroup_count, curCursor,
                    endCursor);
            // Read the log group list.
            List<LogGroupData> logGroups = logDataRes.GetLogGroups();
            for(LogGroupData logGroup: logGroups){
                FastLogGroup flg = logGroup.GetFastLogGroup();
                System.out.println(String.format("\tcategory\t:\t%s\n\tsource\t:\t%s\n\ttop
ic\t:\t%s\n\tmachineUUID\t:\t%s",
                        flg.getCategory(), flg.getSource(), flg.getTopic(), flg.getMachineU
UID()));
                System.out.println("Tags");
                for (int tagIdx = 0; tagIdx < flg.getLogTagsCount(); ++tagIdx) {
                    FastLogTag logtag = flg.getLogTags(tagIdx);
                    System.out.println(String.format("\t%s\t:\t%s", logtag.getKey(), logtag
.getValue()));
                }
                for (int lIdx = 0; lIdx < flg.getLogsCount(); ++lIdx) {
                    FastLog log = flg.getLogs(lIdx);
                    System.out.println("--------\nLog: " + lIdx + ", time: " + log.getTime(
```

```
) + ", GetContentCount: " + log.getContentsCount());
                    for (int cIdx = 0; cIdx < log.getContentsCount(); ++cIdx) {
                        FastLogContent content = log.getContents(cIdx);
                        System.out.println(content.getKey() + "\t:\t" + content.getValue())
;
                    }
                }
            }
            String next_cursor = logDataRes.GetNextCursor();
            System.out.println("The Next cursor:" + next_cursor);
            curCursor = next_cursor;
        }
        // Note: You can call the following API operation only after you enable the indexin
g feature.
        // Before you query logs, wait for 1 minute.
        try {
            Thread.sleep(60 * 1000);
        } catch (InterruptedException e) {
            e.printStackTrace();
        }
        // Query the distribution of logs.
        String query = "<Specify the query keyword. To query all contents, use an empty str
ing.>";
        int from = (int) (new Date().getTime() / 1000 - 300);
        int to = (int) (new Date().getTime() / 1000);
        GetHistogramsResponse res3 = null;
        while (true) {
            GetHistogramsRequest req3 = new GetHistogramsRequest(project, logstore, topic,
query, from, to);
            res3 = client.GetHistograms(req3);
            if (res3 ! = null && res3.IsCompleted()) // IsCompleted()
            // If "true" is returned, the query result is accurate.
            // If "false" is returned, the query is repeated.
            {
                break;
            }
            Thread.sleep(200);
        }
        System.out.println("Total count of logs is " + res3.GetTotalCount());
        for (Histogram ht : res3.GetHistograms()) {
            System.out.printf("from %d, to %d, count %d.\n", ht.GetFrom(), ht.GetTo(), ht.G
etCount());
        }
        // Query log data.
        long total_log_lines = res3.GetTotalCount();
        int log_offset = 0;
        int log_line = 10;
        while (log_offset <= total_log_lines) {
            GetLogsResponse res4 = null;
            // For each log offset, 10 lines are read at a time. If a read operation fails,
a maximum of three retries are allowed.
            for (int retry_time = 0; retry_time < 3; retry_time++) {
                GetLogsRequest req4 = new GetLogsRequest(project, logstore, from, to, topic
, query, log_offset,
                        log_line, false);
```

```
                        log_line, false);
                res4 = client.GetLogs(req4);
                if (res4 ! = null && res4.IsCompleted()) {
                    break;
                }
                Thread.sleep(200);
            }
            System.out.println("Read log count:" + String.valueOf(res4.GetCount()));
            log_offset += log_line;
        }
        // Enable the analytics feature. You can use SQL statements only after you enable t
he analytics feature. You can log on to the Log Service console or use the SDK to enable th
e analytics feature.
        IndexKeys indexKeys = new IndexKeys();
        ArrayList<String> tokens = new ArrayList<String>();
        tokens.add(",");
        tokens.add(".");
        tokens.add("#");
        IndexKey keyContent = new IndexKey(tokens,false,"text");
        indexKeys.AddKey("index0",keyContent);
        keyContent = new IndexKey(new ArrayList<String>(),false,"long");
        indexKeys.AddKey("index1",keyContent);
        keyContent = new IndexKey(new ArrayList<String>(),false,"double");
        indexKeys.AddKey("index2",keyContent);
        IndexLine indexLine = new IndexLine(new ArrayList<String>(),false);
        Index index = new Index(7,indexKeys,indexLine);
        CreateIndexRequest createIndexRequest = new CreateIndexRequest(project,logstore,ind
ex);
        client.CreateIndex(createIndexRequest);
        // Use the analytics feature.
        GetLogsRequest req4 = new GetLogsRequest(project, logstore, from, to, "", " index0:
value | select avg(index1) as v1,sum(index2) as v2, index0 group by index0");
        GetLogsResponse res4 = client.GetLogs(req4);
        if(res4 ! = null && res4.IsCompleted()){
            for (QueriedLog log : res4.GetLogs()){
                LogItem item = log.GetLogItem();
                for(LogContent content : item.GetLogContents()){
                    System.out.print(content.GetKey()+":"+content.GetValue());
                }
                System.out.println();
            }
        }
    }
}
```

Usage notes

- To improve the I/O efficiency of your system, we recommend that you do not use SDKs to write data to Log Service. For information about the recommended data writing methods, see the "Producer Library" section in *User Guide*. *Producer Library*
- To call API operations for data consumption in Log Service, we recommend that you do not use SDKs. Log Service provides an advanced consumer library. The consumer library consumes data in a manner that is transparent to the user, and provides advanced features such as load balancing and

sequential consumption. For more information, see Consumer Library in *User Guide*. *Consumer Library*

20.1.2.3. .NET SDK

Log Service provides developers with Log Service SDK for .NET to simplify the use of Log Service.

Download URL

Log Service SDK for .NET allows developers on Windows to use Log Service on the .NET platform. Log Service SDK for .NET supports .NET Framework 3.5, .NET Framework 4.0, and .NET Framework 4.5. Even though different SDK files are used for different .NET Framework versions, the APIs and features of these versions are the same.

The download URL of Log Service SDK for .NET is GitHub.

Step 1: Create an Apsara Stack tenant account

To access Log Service, you must create an account in the Apsara Uni-manager Management Console.

Step 2: Obtain an AccessKey pair

To use Log Service SDK for .NET, you must obtain an AccessKey pair.

Log on to the Apsara Uni-manager Management Console and select an AccessKey pair for the SDK.

The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use an AccessKey pair in Log Service SDK for .NET, see Basic configurations.

Step 3: Create a project and a Logstore in the Log Service console

Use Log Service SDK for .NET to create a project and a Logstore.

> **Note**
>
> - The account that you use to create the project and the Logstore must be the same as the account that you used to obtain the AccessKey pair.
> - The project name must be unique in Log Service. The Logstore name must be unique in the project.
> - After you create the project, you cannot modify its region or migrate the project across regions.

Step 4: Install a .NET development environment

Log Service SDK for .NET supports the .NET Framework 3.5, .NET Framework 4.0, and .NET Framework 4.5 development environments. We recommend that you install one of the following .NET development environments:

- Microsoft .NET Framework 3.5, Microsoft .NET Framework 4.0, or Microsoft .NET Framework 4.5 (based on your environment)
- Visual Studio 2010 or later

Step 5: Download and install Log Service SDK for .NET

After you build a .NET development environment, you must install Log Service SDK for .NET. To install Log Service SDK for .NET, perform the following steps:

1. Download Log Service SDK for .NET.
   - Download Log Service SDK for .NET from GitHub.
   - Click here to download the latest Log Service SDK for .NET package.
2. Decompress the downloaded package to a specified directory. Log Service SDK for .NET does not require installation. The following step describes how to use the SDK in your Visual Studio project.

Step 6: Create a Log Service .NET project

After you install the .NET development environment and Log Service SDK for .NET, you can create a Log Service .NET project. For more information, see the LOG SDK Sample project in the SLS SDK 40 solution at GitHub.

20.1.2.4. .NET Core SDK

Context

Log Service SDK for .NET Core allows developers to use Log Service by using the .NET Core framework.

The download URL of Log Service SDK for .NET Core is GitHub.

Procedure

1. Create an Apsara Stack tenant account.

   To access Log Service, you must create an account in the Apsara Uni-manager Management Console.

2. Obtain an Apsara Stack AccessKey pair.

   To use Log Service SDK for .NET Core, you must obtain an Apsara Stack AccessKey pair.

   Log on to the Apsara Uni-manager Management Console and select an AccessKey pair for the SDK.

   The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use the AccessKey pair in Log Service SDK for .NET Core, see Basic configurations.

3. Create a project and a Logstore.

   Before you can use the SDK, you must create a project and a Logstore in the Log Service console.

   i. Log on to the Log Service console.
   ii. In the Projects section, click **Create Project**.
   iii. Enter a **Project Name**, select a **Region**, and then click **OK**.
   iv. In the **Projects** section, click the name of the project. On the page that appears, click the plus sign (**+**) in the left-side navigation pane.

   You can also click **Create** to create a Logstore as prompted after you create a project.

   v. In the dialog box that appears, set the required parameters, and then click **OK**.

   You must specify the Logstore name, data retention period, and number of shards. Set the number of shards based on your business requirements. In this example, four shards are created.

> Note
> - The account that you use to create the project and the Logstore must be the same as the account that you used to obtain the AccessKey pair.
> - The project name must be unique in Log Service. The Logstore name must be unique in the project.
> - After you create the project, you cannot modify its region or migrate the project across regions.

4. Install the .NET Core development environment.

   Log Service SDK for .NET Core supports the following versions:

   - .NET Core 2.0
   - .NET Framework (with .NET Core 1.x SDK) 4.6.2
   - .NET Framework (with .NET Core 2.0 SDK) 4.6.1

   For more information about all supported versions, visit GitHub.

5. Download and install Log Service SDK for .NET Core.

   After you build the .NET Core development environment, you must install Log Service SDK for .NET Core.

   i. Download Log Service SDK for .NET Core.

      Click here to download Log Service SDK for .NET Core from GitHub.

   ii. Decompress the downloaded package to a specified directory.

      Log Service SDK for .NET Core does not require installation. You can use Log Service SDK for .NET Core for your Visual Studio project.

6. Create a Log Service .NET Core project.

   After you install the .NET Core development environment and Log Service SDK for .NET Core, you can create a .NET Core project. For more information, visit GitHub Wiki.

20.1.2.5. PHP SDK

Log Service provides developers with Log Service SDK for PHP to simplify the use of Log Service.

Download URL

You can download Log Service SDK for PHP from GitHub:

Step 1: Create an Apsara Stack tenant account

To access Log Service, you must create an account in the Apsara Uni-manager Management Console.

Step 2: Obtain an Apsara Stack AccessKey pair

To use Log Service SDK for PHP, you must obtain an AccessKey pair.

Log on to the Apsara Uni-manager Management Console. Select an AccessKey pair for the SDK. The AccessKey pair consists of an AccessKey ID and an AccessKey secret.

The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use an AccessKey pair in Log Service SDK for PHP, see Basic configurations.

Step 3: Create a project and a Logstore in the Log Service console

Use Log Service SDK for PHP to create a project and a Logstore.

> **Note**
>
> - The account that you use to create the project and the Logstore must be the same as the account that you used to obtain the AccessKey pair.
> - The project name must be unique in Log Service. The Logstore name must be unique in the project.
> - After you create the project, you cannot modify its region or migrate the project across regions.

Step 4: Install a PHP development environment

Log Service SDK for PHP supports PHP V5.2.1 and later. You can install a supported PHP on an on-premises server and build a PHP development environment.

Step 5: Download and install Log Service SDK for PHP

After you build a PHP development environment, you must install Log Service SDK for PHP. To install Log Service SDK for PHP, perform the following steps:

1. Download the latest SDK for PHP package from GitHub.
2. Decompress the downloaded package to a specified directory. Log Service SDK for PHP does not require installation. Log Service SDK for PHP includes the SDK code, third-party dependent packages, and an autoloader to simplify the use of the SDK. The following step describes how to use the SDK in your PHP project.

Step 6: Create a PHP project

To interact with Log Service and obtain the output, you can run the following sample code in a text editor or the PHP integrated development environment (IDE):

```
<? php
/* Use the autoloader to load all required PHP modules. Specify the path of the file that c
ontains the autoloader. */
require_once realpath(dirname(__FILE__) . '/.. /Log_Autoload.php');
$endpoint = 'regionid.example.com'; // The endpoint of the China (Hangzhou) region is used
as an example. Replace it with the actual endpoint based on your region and access method.
$accessKeyId = '<youraccessKeyId>'; // Specify your AccessKey ID.
$accessKey = '<youraccessKey>'; // Specify your AccessKey secret.
$project = 'your_project'; // The name of the project created in the preceding steps.
$logstore = 'your_logstore'; // The name of the Logstore created in the preceding steps.
$client = new Aliyun_Log_Client($endpoint, $accessKeyId, $accessKey);
# List all Logstores in the current project.
$req1 = new Aliyun_Log_Models_ListLogstoresRequest($project);
$res1 = $client->listLogstores($req1);
var_dump($res1);
# Create a Logstore.
$req2 = new Aliyun_Log_Models_CreateLogstoreRequest($project,$logstore,3,2);
```

```
$res2 = $client -> createLogstore($req2);
# Wait until the Logstore takes effect.
sleep(60);
# Write logs.
$topic = "";
$source = "";
$logitems = array();
for ($i = 0; $i < 5; $i++)
{
    $contents = array('index1'=> strval($i));
    $logItem = new Aliyun_Log_Models_LogItem();
    $logItem->setTime(time());
    $logItem->setContents($contents);
    array_push($logitems, $logItem);
}
$req2 = new Aliyun_Log_Models_PutLogsRequest($project, $logstore, $topic, $source, $logitem
s);
$res2 = $client->putLogs($req2);
var_dump($res2);
# Pull the data.
# List the shard IDs in the Logstore.
$listShardRequest = new Aliyun_Log_Models_ListShardsRequest($project,$logstore);
$listShardResponse = $client -> listShards($listShardRequest);
foreach($listShardResponse-> getShardIds()  as $shardId)
{
    # Obtain the cursor that corresponds to each shard ID.
    $getCursorRequest = new Aliyun_Log_Models_GetCursorRequest($project,$logstore,$shardId,
null, time() - 60);
    $response = $client -> getCursor($getCursorRequest);
    $cursor = $response-> getCursor();
    $count = 100;
    while(true)
    {
        # Start to read data from a cursor.
        $batchGetDataRequest = new Aliyun_Log_Models_BatchGetLogsRequest($project,$logstore
,$shardId,$count,$cursor);
        var_dump($batchGetDataRequest);
        $response = $client -> batchGetLogs($batchGetDataRequest);
        if($cursor == $response -> getNextCursor())
        {
            break;
        }
        $logGroupList = $response -> getLogGroupList();
        foreach($logGroupList as $logGroup)
        {
            print ($logGroup->getCategory());
            foreach($logGroup -> getLogsArray() as $log)
            {
                foreach($log -> getContentsArray() as $content)
                {
                    print($content-> getKey().":".$content->getValue()."\t");
                }
                print("\n");
            }
```

```
        }
        $cursor = $response -> getNextCursor();
    }
}
# Before you query logs, wait for 1 minute.
sleep(60);
# Query the distribution of logs. Before you query logs, you must ensure that indexes are c
reated. Log Service SDK for PHP does not provide the API operation that you can call to cre
ate indexes. You must create indexes in the Log Service console.
$topic = "";
$query='';
$from = time()-3600;
$to = time();
$res3 = NULL;
while (is_null($res3) || (! $res3->isCompleted()))
{
    $req3 = new Aliyun_Log_Models_GetHistogramsRequest($project, $logstore, $from, $to, $to
pic, $query);
    $res3 = $client->getHistograms($req3);
}
var_dump($res3);
# Query log data.
$res4 = NULL;
while (is_null($res4) || (! $res4->isCompleted()))
{
    $req4 = new Aliyun_Log_Models_GetLogsRequest($project, $logstore, $from, $to, $topic, $
query, 5, 0, False);
    $res4 = $client->getLogs($req4);
}
var_dump($res4);
```

20.1.2.6. Python SDK

Log Service provides developers with Log Service SDK for Python to simplify the use of Log Service.

Download URLs

You can click here to download Log Service SDK for Python.

You can also download Log Service SDK for Python from GitHub:

https://github.com/aliyun/aliyun-log-python-sdk

Step 1: Create an Apsara Stack tenant account

To access Log Service, you must create an account in the Apsara Uni-manager Management Console.

Step 2: Obtain an Apsara Stack AccessKey pair

To use Log Service SDK for Python, you must obtain an AccessKey pair.

Log on to the Apsara Uni-manager Management Console. Select an AccessKey pair for the SDK. The AccessKey pair consists of an AccessKey ID and an AccessKey secret.

The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use an AccessKey pair in Log Service SDK for Python, see Basic configurations.

Step 3: Create a project and a Logstore in the Log Service console

Before you can use the SDK, you must create a project and a Logstore in the Log Service console.

1. Log on to the Log Service console.
2. In the Projects section, click **Create Project**.
3. Set the **Project Name** and the **Region** parameters, and then click **OK**.
4. In the **Projects** section, click the name of the project. On the page that appears, click the plus sign (**+**) in the left-side navigation pane.

   You can also click **Create** to create a Logstore as prompted after you create a project.
5. In the dialog box that appears, set the required parameters, and then click **OK**.

   You must specify the Logstore name, data retention period, and number of shards. Set the number of shards based on your business requirements. In this example, four shards are created.

> **Note**
> - The account that you use to create the project and the Logstore must be the same as the account that you used to obtain the AccessKey pair.
> - The project name must be unique in Log Service. The Logstore name must be unique in the project.
> - After you create the project, you cannot modify its region or migrate the project across regions.

Step 4: Install the Python development environment

Log Service SDK for Python is a pure Python library that supports all operating systems on which Python runs, such as Linux, Mac OS X, and Windows. To install the Python development environment, perform the following steps:

1. Download and install the latest Python installation package.

   > **Note**
   > - Log Service SDK for Python supports Python 2.6, 2.7, 3.3, 3.4, 3.5, and 3.6. You can run the `python -V` command to check the current version of Python.
   > - Python no longer supports Python 2.6 or Python 3.3. We recommend that you use Python 2.7, Python 3.4, or a later version.

2. Download and install the Python package management tool pip.

   After you install pip, run the `pip -V` command to check whether the installation is successful and view the pip version.

Step 5: Install Log Service SDK for Python

Run the following command as an administrator in Shell to install Log Service SDK for Python.

```
pip install -U aliyun-log-python-sdk
```

Step 6: Start a Python program

The following sample code shows how to use Log Service SDK for Python. To interact with Log Service and obtain the relevant output, run the following sample code in a text editor or Python IDE:

For more information, visit GitHub.

```
# encoding: utf-8
import time
from aliyun.log.logitem import LogItem
from aliyun.log.logclient import LogClient
from aliyun.log.getlogsrequest import GetLogsRequest
from aliyun.log.putlogsrequest import PutLogsRequest
from aliyun.log.listlogstoresrequest import ListLogstoresRequest
from aliyun.log.gethistogramsrequest import GetHistogramsRequest
def main():
    endpoint = '' # Select the endpoint that matches the region of the project created in t
he preceding steps.
    accessKeyId = '' # Use your AccessKey ID.
    accessKey = '' # Use your AccessKey secret.
    project = '' # The name of the project created in the preceding steps.
    logstore = '' # The name of the Logstore created in the preceding steps.
    # Note: Configure four shards for the created Logstore.
    # Create a client instance.
    client = LogClient(endpoint, accessKeyId, accessKey)
    # List all Logstores.
    req1 = ListLogstoresRequest(project)
    res1 = client.list_logstores(req1)
    res1.log_print()
    topic = ""
    source = ""
    # Send 10 packets. Each packet contains 10 log entries.
    for i in range(10):
        logitemList = []  # LogItem list
        for j in range(10):
            contents = [('index', str(i * 10 + j))]
            logItem = LogItem()
            logItem.set_time(int(time.time()))
            logItem.set_contents(contents)
            logitemList.append(logItem)
        req2 = PutLogsRequest(project, logstore, topic, source, logitemList)
        res2 = client.put_logs(req2)
        res2.log_print()
    # List all shards and read the data written within the last minute.
    listShardRes = client.list_shards(project, logstore)
    for shard in listShardRes.get_shards_info():
        shard_id = shard["shardID"]
        start_time = int(time.time() - 60)
        end_time = start_time + 60
        res = client.get_cursor(project, logstore, shard_id, start_time)
        res.log_print()
        start_cursor = res.get_cursor()
```

```
        res = client.get_cursor(project, logstore, shard_id, end_time)
        end_cursor = res.get_cursor()
        while True:
            loggroup_count = 100  # Read 100 packets each time.
            res = client.pull_logs(project, logstore, shard_id, start_cursor, loggroup_coun
t, end_cursor)
            res.log_print()
            next_cursor = res.get_next_cursor()
            if next_cursor == start_cursor:
                break
            start_cursor = next_cursor
    # Note: You can call the following API operation to query data only after you enable th
e indexing feature.
    time.sleep(60)
    topic = ""
    query = "index"
    From = int(time.time()) - 600
    To = int(time.time())
    res3 = None
    # Query the number of log entries generated within the last 10 minutes based on the que
ry conditions. Retry the query if not all execution results are correct.
    while (res3 is None) or (not res3.is_completed()):
        req3 = GetHistogramsRequest(project, logstore, From, To, topic, query)
        res3 = client.get_histograms(req3)
    res3.log_print()
    # Obtain the number of log entries that match the query conditions.
    total_log_count = res3.get_total_count()
    log_line = 10
    # Read 10 log entries each time until all log data is queried. Retry the query three ti
mes if not all query results are correct during each query.
    for offset in range(0, total_log_count, log_line):
        res4 = None
        for retry_time in range(0, 3):
            req4 = GetLogsRequest(project, logstore, From, To, topic, query, log_line, offs
et, False)
            res4 = client.get_logs(req4)
            if res4 is not None and res4.is_completed():
                break
            time.sleep(1)
        if res4 is not None:
            res4.log_print()
    listShardRes = client.list_shards(project, logstore)
    shard = listShardRes.get_shards_info()[0]
    # Split a shard.
    if shard["status"] == "readwrite":
        shard_id = shard["shardID"]
        inclusiveBeginKey = shard["inclusiveBeginKey"]
        midKey = inclusiveBeginKey[:-1] + str((int(inclusiveBeginKey[-1:])) + 1)
        client.split_shard(project, logstore, shard_id, midKey)
    # Merge shards.
    shard = listShardRes.get_shards_info()[1]
    if shard["status"] == "readwrite":
        shard_id = shard["shardID"]
        client.merge_shard(project, logstore, shard_id)
```

```
    # Delete a shard.
    shard = listShardRes.get_shards_info()[-1]
    if shard["status"] == "readonly":
        shard_id = shard["shardID"]
        client.delete_shard(project, logstore, shard_id)
 # Create an external data source. def sample_external_store(client,project): res = client.
create_external_store(project,ExternalStoreConfig("rds_store","cn-qingdao","rds-vpc","vpc-m
5eq4irc1pucpk85frr5j","i-m5eeo2whsnfg4kzq54ah","47.104.78.128","3306","root","sfdsfldsfksfl
sdfs","meta","join_meta")); res.log_print() res = client.update_external_store(project,Exte
rnalStoreConfig("rds_store","cn-qingdao","rds-vpc","vpc-m5eq4irc1pucpk85frr5j","i-m5eeo2whs
nfg4kzq54ah","47.104.78.128","3306","root","sfdsfldsfksflsdfs","meta","join_meta")); res.lo
g_print() res = client.get_external_store(project,"rds_store"); res.log_print() res = clien
t.list_external_store(project,""); res.log_print(); res = client.delete_external_store(proj
ect,"rds_store") res.log_print(); # Use Log Service SDK for Python to query data. req4 = Ge
tLogsRequest(project, logstore, From, To, topic, "* | select count(1)", 10,0, False) res4 =
client.get_logs(req4) # Use Log Service SDK for Python to query data in ApsaraDB RDS for My
SQL through the JOIN syntax. req4 = GetLogsRequest(project, logstore, From, To, topic, "* |
select count(1) from "+logstore +" l join rds_store r on l.ikey =r.ekey", 10,0, False) res4
= client.get_logs(req4) # Use Log Service SDK for Python to write the query result to RDS.
req4 = GetLogsRequest(project, logstore, From, To, topic, "* | insert into rds_store select
count(1) ", 10,0, False) res4 = client.get_logs(req4)
if __name__ == '__main__':
    main()
```

20.1.2.7. SDK for Android

The Log Service SDK for Android is used to collect user data from Android platforms and write the data to Log Service.

Download URL at GitHub

https://github.com/aliyun/aliyun-log-android-sdk

20.1.2.8. SDK for C

The Log Service SDK for C is used to access logs in Log Service from multiple platforms, such as the MIPS and OpenWrt systems.

The SDK for C uses libcurl as a network library. The *apr/apr-util* library resolves issues about memory management and cross-platform operations. You can use the SDK for C after you compile a small part of the source code.

In addition, the C Producer Library and C Producer Lite Library provide you with a one-stop log collection solution across different platforms. This solution features simple deployment, high performance, and low resource consumption.

For more information, visit the following GitHub URLs:

- C Producer Library (recommended for servers)
- C Producer Lite Library (recommended for IoT and smart devices)

20.1.2.9. SDK for Go

Log Service provides developers with the SDK for Go to simplify the use of Log Service.

The Log Service SDK for Go allows developers to perform the following operations:

- Write and consume data in batches.
- Use keywords to query indexes.
- Manage Logtail configurations and machine groups.

You can download the SDK for Go from the following GitHub URL: https://github.com/aliyun/aliyun-log-go-sdk.

For information about the usage instructions and sample code, see README.

20.1.2.10. iOS SDK

Log Service SDK for iOS is implemented based on Log Service APIs. The SDK allows you to write logs to Log Service.

You can download Log Service SDK for iOS from GitHub based on your programming language.

- Swift: https://github.com/aliyun/aliyun-log-ios-sdk.
- Object-C: https://github.com/lujiajing1126/AliyunLogObjc. AliyunLogObjc is a third-party tested SDK. You can raise issues to the author and receive a quick response.

Swift-based sample code of Log Service SDK for iOS

```
/*
    Use an endpoint, AccessKey ID, and AccessKey secret to create a Log Service client.
    @endPoint: The endpoint. For more information, visit https://help.aliyun.com/document_d
etail/29008.html.
 */
let myClient = try! LOGClient(endPoint: "",
                              accessKeyID: "",
                              accessKeySecret: "",
                              projectName:"")
/* Create a log group. */
let logGroup = try! LogGroup(topic: "mTopic",source: "mSource")
   /* Write a log entry to the log group. */
    let log1 = Log()
          try! log1.PutContent("K11", value: "V11")
         try! log1.PutContent("K12", value: "V12")
         try! log1.PutContent("K13", value: "V13")
    logGroup.PutLog(log1)
   /* Write a log entry to the log group. */
    let log2 = Log()
          try! log2.PutContent("K21", value: "V21")
         try! log2.PutContent("K22", value: "V22")
         try! log2.PutContent("K23", value: "V23")
    logGroup.PutLog(log2)
 /* Send the log entry. */
 myClient.PostLog(logGroup,logStoreName: ""){ response, error in
        // handle response however you want
        if error?.domain == NSURLErrorDomain && error?.code == NSURLErrorTimedOut {
            print("timed out") // note, `response` is likely `nil` if it timed out
        }
    }
```

Objective-C

For information about how to use Log Service SDK for iOS based on Objective-C, visit Objective-C at GitHub.

20.1.2.11. SDK for C ++

The Log Service SDK for C ++ allows you call Log Service API operations in C++ programs. This SDK applies only to Linux platforms.

The Log Service SDK for C ++ supports all Log Service APIs and provides multiple features, such as resource creation and data read/write.

You can download the SDK for C ++ from the following GitHub URL: https://github.com/aliyun/aliyun-log-cpp-sdk.

20.1.2.12. Node.js SDK

Log Service SDK for Node.js allows developers to use Log Service by using Node.js programs. This topic describes how to use Log Service SDK for Node.js to write log data to Log Service.

Procedure

1. Create an Apsara Stack tenant account.
2. Obtain an Apsara Stack AccessKey pair.

   The AccessKey pair will be used in the following steps and must be kept confidential. For information about how to use the AccessKey pair in Log Service SDK for Node.js, see Basic configurations.
3. Create a project.
   i. Use the Node.js web framework Express to create a project.

      For more information, see installing.
   ii. Install morgan.
   iii. Create an app.js file in the project.

      The app.js file contains the following code:

```
var express = require('express')
var morgan = require('morgan')
var app = express()
const logger = morgan(function (tokens, req, res) {
  return [
    tokens.method(req, res),
    tokens.url(req, res),
    tokens.status(req, res),
    tokens.res(req, res, 'content-length'), '-',
    tokens['response-time'](req, res), 'ms'
  ].join(' ')
})
app.use(logger)
app.get('/', (req, res) => res.send('Hello World!'))
app.listen(3000, () => console.log('Example app listening on port 3000!'))
```

   iv. Run the **node app.js** command to start the project.

   Visit `http://localhost:3000`. Then, access logs are generated.

```
➜ myExpressApp node app.js
Example app listening on port 3000!
GET / 304  - 3.795 ms
```

4. Write logs to Log Service.
   i. Install aliyun-sdk.

      Click here to download aliyun-sdk. Run the **npm install aliyun-sdk** command to install aliyun-sdk.
   ii. Create a project and a Logstore in the Log Service console.
   iii. Call Log Service SDK for Node.js in the project.

      The following sample code is used:

```
var express = require('express')
var morgan = require('morgan')
var ALY = require('aliyun-sdk') // Call aliyun-sdk.
var app = express()
```

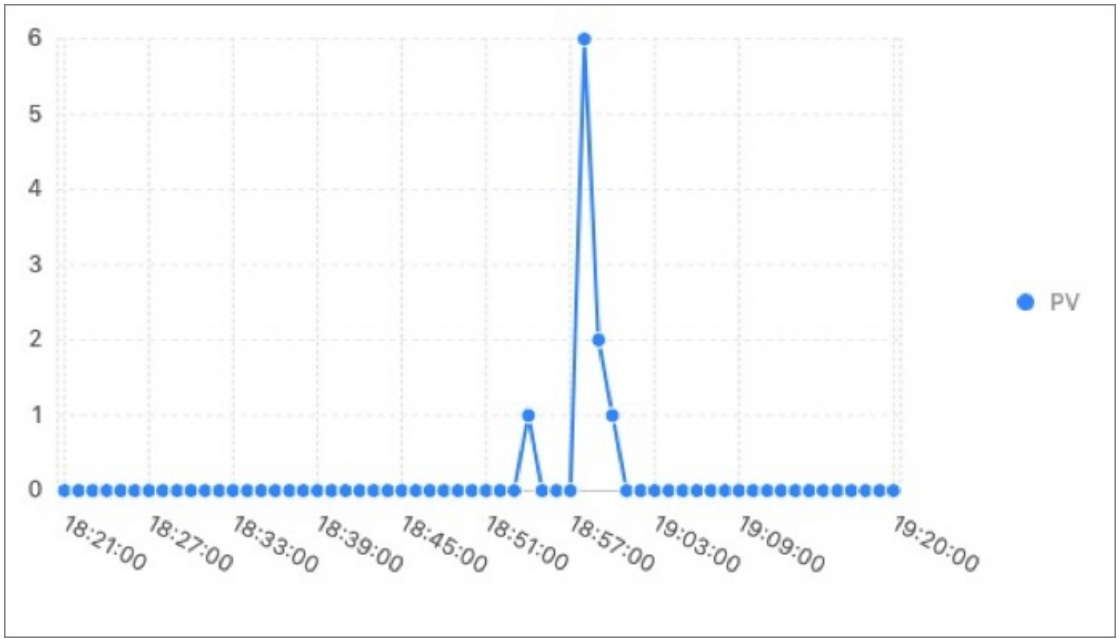
```
var app = express();
const logger = morgan(function (tokens, req, res) {
  // Obtain log data.
  const log = [
    tokens.method(req, res),
    tokens.url(req, res),
    tokens.status(req, res),
    tokens.res(req, res, 'content-length'), '-',
    tokens['response-time'](req, res), 'ms'
  ]
  var sls = new ALY.SLS({
    "accessKeyId": "LTA******G9", // The AccessKey ID that is obtained in Step 2
    "secretAccessKey": "MMfX******lo1", // The AccessKey secret that is obtained in
Step 2
    endpoint: 'http://cn-hangzhou.sls.aliyuncs.com',
    apiVersion: '2015-06-01'
  })
  var logGroup = {
    logs: [
      {
        time:  Math.floor(new Date().getTime()/1000), // Unit: seconds
        contents: [ // Key-value pairs
          {
            key: 'method',
            value: log[0]
          },
          {
            key: 'url',
            value: log[1]
          },
          {
            key: 'status',
            value: log[2]
          },
          {
            key: 'time',
            value: log[5]
          }
        ]
    }],
    topic: 'topicName', //optional
    source: '127.0.0.1' //optional
  };
  var opt = {
    projectName: 'wangdan-test',
    logStoreName: 'test',
    logGroup
  }
  sls.putLogs(opt,function(error, data) {
    console.log(error, data)
  })
  return [
    tokens.method(req, res),
    tokens.url(req, res),
    tokens.status(req, res),
```

```
    tokens.res(req, res, 'content-length'), '-',
    tokens['response-time'](req, res), 'ms'
  ].join(' ')
})
app.use(logger)
app.get('/', (req, res) => res.send('Hello World!'))
app.listen(3000, () => console.log('Example app listening on port 3000!'))
```

5. View collected log data.

   In the Log Service console, find the Logstore in the project. Click the Logstore name, enter a query statement in the search box on the **Search & Analysis** page, and then click Search & Analyze to view log data.

   The following figure indicates that most page views (PVs) occurred between 18:30 and 19:00 on September 12 during the specified time range. You can record and display the PV statistics as a chart on your dashboard.



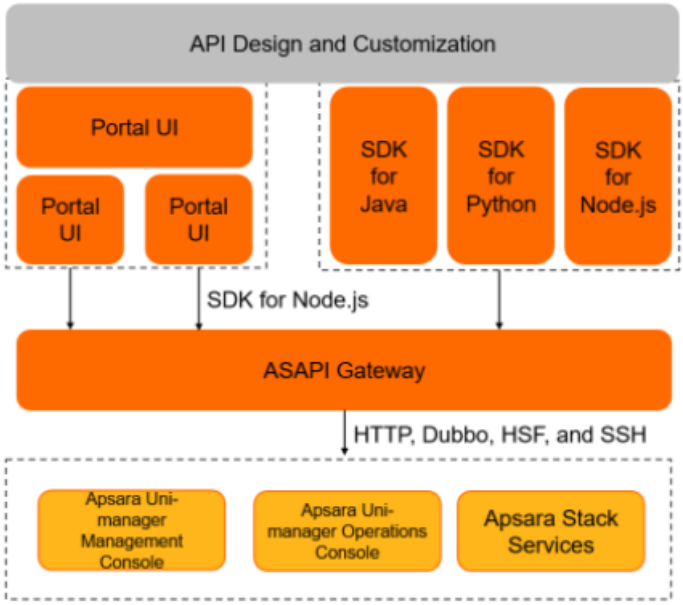
20.1.3. ASAPI Reference

20.1.3.1. Overview

This topic describes the architecture and features of Apsara Stack API (ASAPI).

ASAPI is a platform that integrates all features and is the only portal to connect to Apsara Stack. ASAPI can categorize, audit, and manage API operations. ASAPI can also assemble and customize existing API operations and adapt to your API operations. Each cloud service can call ASAPI for required data and features to avoid inconsistent operations that may be caused by different request methods and separate encapsulation. This ensures the integrity of API operations, increases the development efficiency of API operations, and improves the portability of code.

> **Note** Only the CreateProject, DeleteProject, UpdateProject, GetProject, and ListProject API operations in Log Service are available in ASAPI. You can use ASAPI to call these API operations.



ASAPI allows you to manage and call API operations in a centralized manner and customize development for API operations. ASAPI supports access to most cloud services deployed in Apsara Stack and supports pass-through or encapsulation of different backend APIs. This way, operations can be called by using the same method. ASAPI allows you to use SDKs and API portals to call API operations registered on ASAPI, customize SDKs, and manage versions of Apsara Stack, services, and APIs.

20.1.3.2. Preparations

20.1.3.2.1. Log on to the API Tool console

You can log on to the API Tool console from the Apsara Uni-manager Management Console.

Prerequisites

- The URL of the Apsara Uni-manager Management Console is obtained from the deployment personnel before you log on to the Apsara Uni-manager Management Console.
- We recommend that you use the Google Chrome browser.

Procedure

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

> **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 10 to 32 characters in length and must contain at least two of the following character types:
>
> - Uppercase or lowercase letters
> - Digits
> - Special characters, which include ! @ # $ %

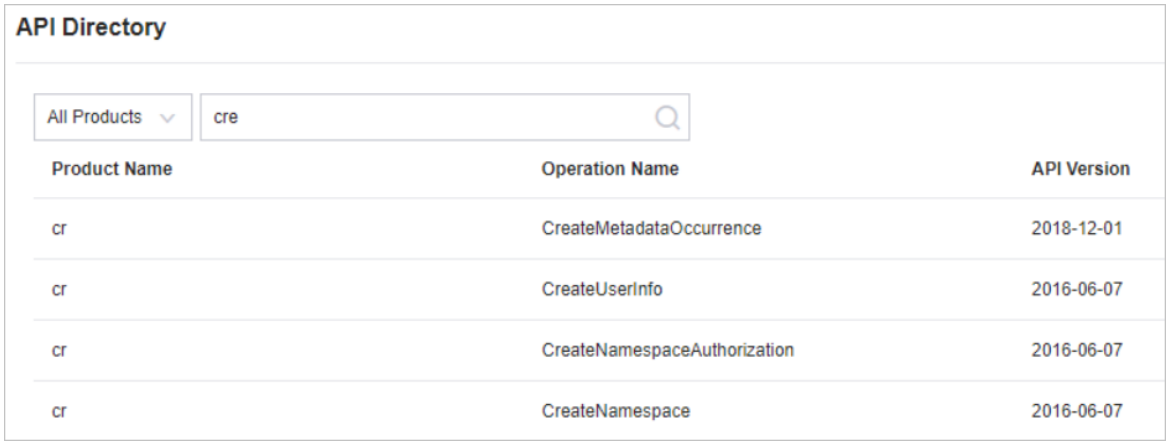
3. Click **Log On**.
4. In the top navigation bar, choose **Products > Others > API Tool**.

20.1.3.2.2. View the information of API operations

This topic describes how to view information of API operations. The following information is required when you use an SDK: service name, API operation name, and API operation version.

Procedure

1. Log on to the API Tool console.
2. In the left-side navigation pane, click **API Directory**.
3. On the **API Directory** page, select the required service from the drop-down list in the upper-left corner. Then, enter a keyword of an API operation name in the search box and click the Search icon.



4. Then, you can view the service name, API operation name, and API version number.

20.1.3.2.3. Generate an endpoint for the ASAPI

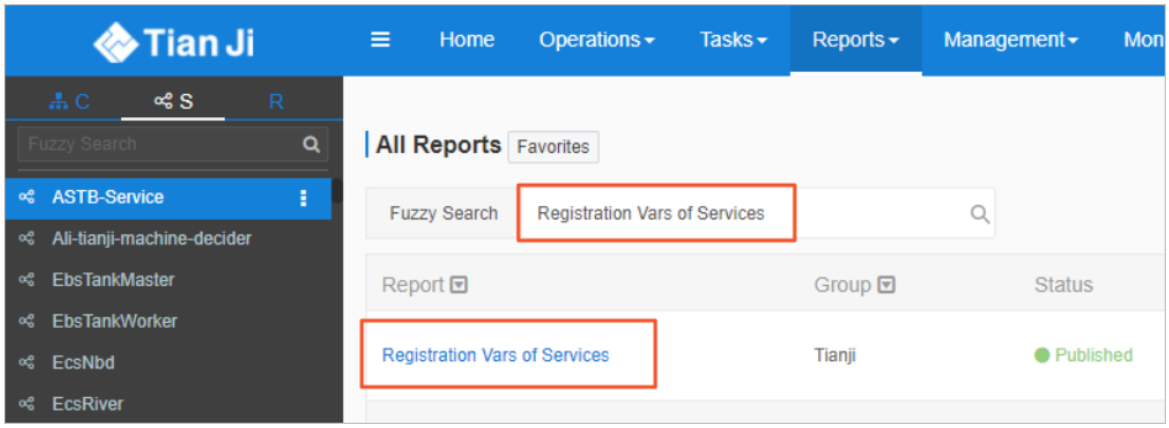
This topic describes three methods used to generate an endpoint for the Apsara Stack API (ASAPI).

Method 1: Use Registration Vars of Services to generate an endpoint

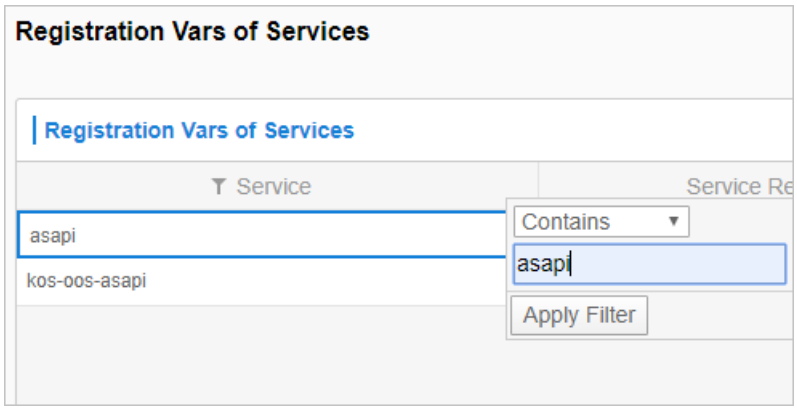
1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management > Products**.

iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.

2. In the left-side navigation pane, click **Reports**.
3. On the **All Reports** page, search for `Registration Vars of Services` and click the report name.



4. On the **Registration Vars of Services** page, click the icon next to **Service** and search for `asapi`.



5. Find the asapi service, right-click in the **Service Registration** column, and then select **Show More** from the shortcut menu.

   In the **Details** dialog box, obtain the value of **asapi.public.endpoint**.

6. Generate an endpoint for the ASAPI based on the following format:

```
https://<asapi.public.endpoint>/asapi/v3
```

Method 2: Use cluster resources to generate an endpoint

1. Log on to Apsara Infrastructure Management Framework.
   i. Log on to the Apsara Uni-manager Operations Console.
   ii. In the top navigation bar, click **O&M**.
   iii. In the left-side navigation pane, choose **Product Management** > **Products**.
   iv. In the Apsara Stack O&M section, click **Apsara Infrastructure Management Framework**.
2. Go to the cluster operations page.

i. In the left-side navigation pane, choose Operations > Cluster Operations.

ii. In the **Cluster** search box, enter `ascm`.

iii. Find the cluster that you want to manage and click **Operations** in the **Actions** column.

3. Obtain the value of the domain parameter.

i. Click the Cluster Resources tab.

ii. In the **Name** field, search for `asapi_dns_public`.

iii. Click **Details** in the **Application Parameter** column.

In the **Application Parameter** message, obtain the value of the **domain** parameter.

4. Generate an endpoint for the ASAPI based on the following format:

```
https://<domain>/asapi/v3
```

Method 3: Concatenate strings to generate an endpoint

You can also concatenate strings to generate an endpoint based on the following format:

```
https://public.asapi.<region>.<internet-domain>/asapi/v3
```

> **Note**
>
> 1. Replace <region> with your actual region ID. For information about how to query a region ID, see Query a region ID.
> 2. Replace <internet-domain> with the root domain of your Apsara Stack service. To obtain the root domain, contact Apsara Stack O&M personnel. Take note of this point: Use the internet-domain parameter instead of the intranet-domain parameter.

If the **region** value is `cn-****-****-d01` and the **internet-domain** value is `inter.****.****.com`, the following endpoint can be generated:

```
https://public.asapi.cn-****-****-d01.inter.****.****.com/asapi/v3
```

20.1.3.2.4. Obtain Apsara Stack SDKs

The Apsara Stack API (ASAPI) is a unified portal provided by Apsara Stack. You can use the ASAPI to connect to all Apsara Stack services. Apsara Stack provides SDKs for API calls.

For more information about how to obtain Apsara Stack SDKs, see Apsara Stack documentation.

20.1.3.2.5. Obtain an AccessKey pair

An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey pair is used to implement symmetric encryption to verify the identity of the requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

Only operations administrators and level-1 organization administrators can obtain the AccessKey pair of an organization.

Context

We recommend that you use the AccessKey pair of a personal account to call the API operations of the Apsara Uni-manager Management Console and cloud services. When you use the AccessKey pair of a personal account, you must configure header parameters as described in the following table for access control.

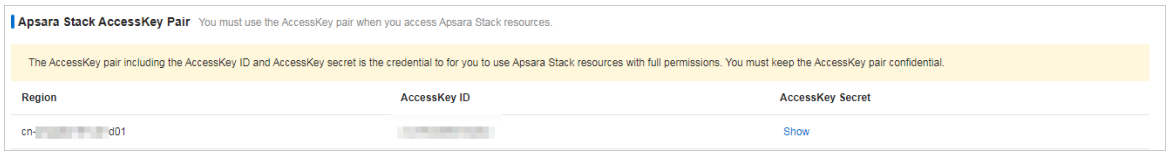
Parameter	Description
x-acs-regionid	The region ID, such as cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance on which you want to perform operations.

Warning The AccessKey pairs of personal accounts are under control of the Apsara Uni-manager Management Console permission system. AccessKey pairs of organization accounts have higher permissions. For security purposes, organization operations must be approved by administrators.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view your AccessKey pair.



> **Note** The AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs allow you to access Apsara Stack resources with full permissions for your account. You must keep your AccessKey pair confidential.

Obtain the AccessKey pair of an organization

To obtain the AccessKey pair of an organization, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the organization navigation tree, click an organization name.
5. In the Current Organization section, click **Obtain an accesskey**.
6. In the AccessKey message, view the AccessKey pair of the organization.

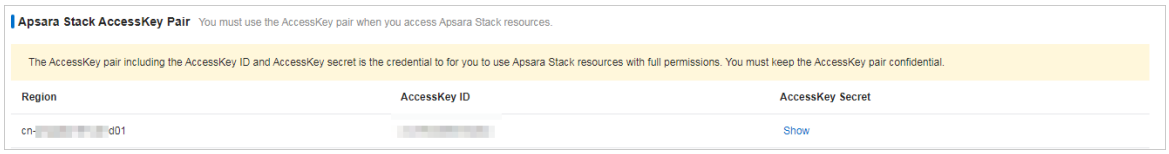
> **Note** An AccessKey pair is automatically allocated to each level-1 organization. Subordinate organizations use the same AccessKey pair of their level-1 organization.

20.1.3.2.6. Query a region ID

When you use Apsara Stack SDK for Node.js to make API calls, specify a region ID. You can obtain a region ID in the Apsara Uni-manager Management Console.

Procedure

1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view the region ID.



20.1.3.3. Common request parameters

Common request parameters must be included in all API requests.

Common request parameters

The following common request parameters are used to call the ASAPI service.

Parameter	Type	Required	Description

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. For more information, see View the information about API operations.
Product	String	Yes	The name of the service.
Version	String	Yes	The API version of the service. For more information, see View the information about API operations.
RegionId	String	Yes	The ID of the region. For more information, see Query the region ID.
AccessKeyId	String	Yes	The AccessKey ID used to connect to the service. For more information, see Obtain an AccessKey pair.
Signature	String	Yes	The signature string of the request. For more information, see Request signatures.
SignatureMethod	String	Yes	The encryption method of the signature string. Set the value to HMAC-SHA1 or HMAC-SHA256.
SignatureVersion	String	Yes	The version of the signature encryption algorithm. Set the value to 1.0 or 2.0.

Parameter	Type	Required	Description
SignatureNonce	String	Yes	A unique, random number used to prevent replay attacks. You must use different numbers for different requests.
Timestamp	String	Yes	The timestamp of the request. Specify the time in the ISO 8601 standard in the yyyy-MM-ddTHH:mm:ssZ format. The time must be in UTC. Example: 2018-01-01T12:00:00Z.
Format	String	Yes	The format in which to return the response. Set the value to JSON.

> **Note**
>
> The `Signature`, `SignatureMethod`, `SignatureVersion`, `SignatureNonce`, `Timestamp`, and `Format` parameters are encapsulated into the SDK.

20.1.3.4. SDK Reference

20.1.3.4.1. Apsara Stack SDK for Java

This topic describes how to obtain and use Apsara Stack SDK for Java.

Prerequisites

- An authorized account and an AccessKey pair are obtained. The AccessKey pair consists of an AccessKey ID and an AccessKey secret. For more information about how to obtain and view your AccessKey pair in the Apsara Uni-manager Management Console, see Obtain an AccessKey pair.
- The endpoint of ASAPI is obtained. For more information, see Obtain the endpoint of ASAPI.
- Apsara Stack SDK for Java supports JDK V1.8 and later.

Add dependencies

Add dependencies to the pom.xml file:

```
<dependency>
    <groupId>com.aliyun</groupId>
    <artifactId>asapi</artifactId>
    <version>0.0.8.1-RELEASE</version>
</dependency>
```

Use Apsara Stack SDK for Java

- ListProject

```
// Set the request parameters.
try {
  Map<String, String> requestParams = new HashMap<String, String>();
  // Set the parameters for Log Service.
  requestParams.put("Product", "SLS"); // The service name must be the same as that displ
ayed in the corresponding API directory.
  requestParams.put("Action", "ListProject"); // The name of the API operation. The name
is case-sensitive and must be the same as that in the API directory.
  requestParams.put("Version", "2020-03-31"); // The version number of the API.
  requestParams.put("offset", "0");
  requestParams.put("size", "10");
  // Set the authorization parameters.
  requestParams.put("AccessKeyId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeySecret", ""); // The AccessKey secret of the authorized acc
ount.
  requestParams.put("RegionId", ""); // The region ID.
  // Create a client to initiate requests.
  ASClient client = new ASClient();
  // Set the parameters in the request header.
  client.addHeader("x-acs-regionId", "");
  client.addHeader("x-acs-resourcegroupid", "");
  client.addHeader("x-acs-organizationid", "");
  // Initiate the request and obtain the response.
  String result = client.doRequest("your_endpoint", requestParams);
  JSONObject jsonObject = JSONObject.parseObject(result);
  Map<String, Object> mapData = new HashMap<String, Object>();
  if ("true".equals(jsonObject.getString("success"))) {
    String projects = jsonObject.getString("projects");
    List<String> array = JSONArray.parseArray(projects, String.class);
    List<Object> data = new ArrayList<Object>();
    for (String projectStr : array) {
      JSONObject object = JSONObject.parseObject(projectStr);
      Set<String> keySet = object.keySet();
      Map<String, String> map = new HashMap<String, String>(keySet.size());
      for (String key : keySet) {
        if ("description".equals(key)) {
          String description = object.getString(key);
          map.put("projectDesc", description == null ? "" : description);
      } else if ("region".equals(key)) {
        map.put("clusterRegion", object.getString(key));
      } else {
        map.put(key, object.getString(key));
      }
    }
```

```
    data.add(map);
  }
    mapData.put(SLSBaseConst.E_PROJECTS, data);
    mapData.put(SLSBaseConst.E_TOTAL, jsonObject.getInteger("total"));
    mapData.put(SLSBaseConst.E_COUNT, jsonObject.getInteger("count"));
    System.out.println(mapData);
   } else {
     throw new RuntimeException("list failed");
   }
  } catch (Exception e) {
    e.printStackTrace();
  }
```

- CreateProejct

```
try {
  Map<String, String> requestParams = new HashMap<String, String>();
  // Set the parameters for Log Service.
  requestParams.put("action", "CreateProject"); // The name of the API operation. The nam
e is case-sensitive and must be the same as that in the API directory.
  requestParams.put("product", "SLS"); // The service name must be the same as that displ
ayed in the corresponding API directory.
  requestParams.put("version", "2020-03-31"); // The version number of the API.
  requestParams.put("projectName", ""); // The name of the project.
  requestParams.put("description", ""); // The description of the project.
  requestParams.put("RegionId", ""); // The region ID.
  requestParams.put("AccessKeyId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeySecret", ""); // The AccessKey secret of the authorized acc
ount.
  requestParams.put("Department", "");
  requestParams.put("ResourceGroup", "");
  // Create a client to initiate requests.
  ASClient client = new ASClient();
  // Set the parameters in the request header.
  client.addHeader("x-acs-regionId", "");
  client.addHeader("x-acs-resourcegroupid", "");
  client.addHeader("x-acs-organizationid", "");
  String result = client.doRequest("your_endpoint", requestParams);
  System.out.println(result);
} catch (Exception e) {
  e.printStackTrace();
}
```

- GetProject

```
try {
  Map<String, String> requestParams = new HashMap<String, String>();
  // Set the parameters for Log Service.
  requestParams.put("action", "GetProject"); // The service name must be the same as that
displayed in the corresponding API directory.
  requestParams.put("product", "SLS"); // The name of the API operation. The name is case
-sensitive and must be the same as that in the API directory.
  requestParams.put("version", "2020-03-31"); // The version number of the API.
  requestParams.put("projectName", ""); // The name of the project.
  requestParams.put("RegionId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeyId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeySecret", ""); // The AccessKey secret of the authorized acc
ount.
  // Create a client to initiate requests.
  ASClient client = new ASClient();
  // Set the parameters in the request header.
  client.addHeader("x-acs-regionId", "");
  client.addHeader("x-acs-resourcegroupid", "");
  client.addHeader("x-acs-organizationid", "");
  client.addHeader("x-acs-instanceId", "");
    String result = client.doRequest("your_endpoint", requestParams);
    JSONObject object = JSONObject.parseObject(result);
    if (object.getString("projectName") == null) {
      throw new RuntimeException(result);
    } else {
      Set<String> keySet = object.keySet();
      Map<String, String> map = new HashMap<String, String>(keySet.size());
      for (String key : keySet) {
        if ("description".equals(key)) {
          String description = object.getString(key);
          map.put("projectDesc", description == null ? "" : description);
        } else if ("region".equals(key)) {
         map.put("clusterRegion", object.getString(key));
        } else {
        map.put(key, object.getString(key));
        }
      }
      System.out.println(map);
    }
  } catch (Exception e) {
    e.printStackTrace();
  }
```

- UpdateProject

```
try {
  Map<String, String> requestParams = new HashMap<String, String>();
  // Set the parameters for Log Service.
  requestParams.put("action", "UpdateProject"); // The name of the API operation. The nam
e is case-sensitive and must be the same as that in the API directory.
  requestParams.put("product", "SLS"); // The service name must be the same as that displ
ayed in the corresponding API directory.
  requestParams.put("version", "2020-03-31"); // The version number of the API.
  requestParams.put("projectName", "");// The name of the project to be updated.
  requestParams.put("description", ""); // The description of the project.
  requestParams.put("RegionId", ""); // The region ID.
  requestParams.put("AccessKeyId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeySecret", ""); // The AccessKey secret of the authorized acc
ount.
  requestParams.put("Department", "");
  requestParams.put("ResourceGroup", "");
  // Create a client to initiate requests.
  ASClient client = new ASClient();
  // Set the parameters in the request header.
  client.addHeader("x-acs-regionId", "");
  client.addHeader("x-acs-resourcegroupid", "");
  client.addHeader("x-acs-organizationid", "");
  String result = client.doRequest("your_endpoint", requestParams);
    System.out.println(result);
  } catch (Exception e) {
    e.printStackTrace();
  }
```

- DeleteProject

```
try {
  Map<String, String> requestParams = new HashMap<String, String>();
  // Set the parameters for Log Service.
  requestParams.put("action", "DeleteProject"); // The name of the API operation. The nam
e is case-sensitive and must be the same as that in the API directory.
  requestParams.put("product", "SLS"); // The service name must be the same as that displ
ayed in the corresponding API directory.
  requestParams.put("version", "2020-03-31"); // The version number of the API.
  requestParams.put("projectName", ""); // The name of the project to be deleted.
  requestParams.put("RegionId", ""); // The region ID.
  requestParams.put("AccessKeyId", ""); // The AccessKey ID of the authorized account.
  requestParams.put("AccessKeySecret", ""); // The AccessKey secret of the authorized acc
ount.
  // Create a client to initiate requests.
  ASClient client = new ASClient();
  // Set the parameters in the request header.
  client.addHeader("x-acs-regionId", "");
  client.addHeader("x-acs-resourcegroupid", "");
  client.addHeader("x-acs-organizationid", "");
  client.addHeader("x-acs-instanceId", "");
    String result =client.doRequest("<your_endpoint>", requestParams);
    System.out.println(result);
  } catch (Exception e) {
    e.printStackTrace();
  }
```

The following table describes the parameters in the request header.

Parameter	Description
x-acs-regionid	The region ID. For more information about how to obtain the region ID, see Query the region ID.
x-acs-resourcegroupid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-organizationid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance that you want to manage.

20.1.3.5. HTTP Requests

20.1.3.5.1. Overview

This topic describes how to make API requests and is intended for users who use API URLs to initiate HTTP GET requests.

If you are using an SDK to initiate requests, you can skip this topic.

The request URL consists of different parameters and has a fixed syntax. The URL contains common request parameters, your signature, and operation-specific parameters. Sample request URLs are provided for each API operation. These URLs are not encoded to make them easy to read. Before you make a request, you must encode the request URL. After the authentication process is complete based on your signature, the results are returned to you. Response parameters are returned if the call is successful, whereas an error message is returned if the call fails. You can troubleshoot issues based on the error message.

20.1.3.5.2. Request syntax

The Apsara Stack API (ASAPI) allows you to call API operations by sending HTTP GET requests based on URLs. Each URL must include request parameters. This topic describes the syntax of HTTP GET requests and provides the endpoint of the ASAPI.

Sample request

GetOrganizationList is used in the following unencoded URL request:

```
https://public.asapi.aliyuns.com/asapi/v3?Action=GetOrganizationList&Product=ascm&Version=2019-05-10&Id=<Organization ID>&<Common parameters>
```

- `https` : the protocol used to transmit the request.
- `public.asapi.aliyuns.com/asapi/v3` : the endpoint of the ASAPI.
- `Action=GetOrganizationList Product=ascm Version=2019-05-10` : the API operation to call.
- `Id` : the ID of the organization.
- `<Common parameters>` : the common parameters specified in the system.

Protocol

The ASAPI supports only HTTPS.

Endpoint

For more information about how to obtain an endpoint, see Generate an endpoint for the ASAPI.

Parameter

To specify an API operation, use the `Action, Product, and Version` parameters. For example, set `Action` to GetOrganizationList, Product to ascm, and Version to 2019-05-10. You must also specify other operation-specific parameters and common parameters. For more information, see Common parameters.

20.1.3.5.3. Request signatures

This topic describes how to sign HTTP API requests. ASAPI uses the request signature to verify the identity of the request sender. ASAPI implements symmetric encryption by using an AccessKey pair to verify the identity of the request sender.

> **Note**
>
> - An AccessKey pair consists of an AccessKey ID and an AccessKey secret, which are issued to each user or organization in the Apsara Uni-manager Management Console.
> - The AccessKey ID is used to verify identities of users, and the AccessKey secret is used to encrypt and verify signature strings. You must keep your AccessKey secret confidential.
> - ASAPI provides SDKs for Node.js, Python, and Java to facilitate complex signature calculation. For more information, see Obtain the core package for ASAPI.

Step 1: Create a canonicalized query string

1. Arrange the request parameters in alphabetical order, including all common and operation-specific parameters except the `Signature` parameter.

   > **Note**
   >
   > If you use the GET method to send a request,these parameters are connected by ampersands (&) and included in the request URL. The first request parameter follows a question mark (?).

2. Encode the request parameters and their values in UTF-8 based on RFC 3986. The following rules apply in the encoding process:
   - Letters, digits, and special characters such as hyphens (`-`), underscores (`_`), and periods (`.`) do not need to be encoded.
   - Other characters must be percent encoded in the `%XY` format. `XY` represents the ASCII code of the characters in hexadecimal notation. For example, double quotation marks (`"`) are encoded as `%22` .
   - Extended UTF-8 characters are encoded in the `%XY%ZA…` format.
   - Spaces must be encoded as `%20` . Do not encode spaces as plus signs (`+`).

     This encoding method is similar to but different from the `application/x-www-form-urlencoded` MIME encoding algorithm.

     If you use `java.net.URLEncoder` from the Java standard library, use `percentEncode` to encode request parameters and their values. In the encoded query string, replace the plus signs (`+`) with `%20` , asterisks (`*`) with `%2A` , and `%7E` with tildes (`~`). This way, you can obtain an encoded string that matches the preceding encoding rules.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException
{
    return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").rep
lace("*", "%2A").replace("%7E", "~") : null;
}
```

3. Use equal signs (`=`) to connect the encoded request parameters and their values.
4. Use ampersands (`&`) to connect the encoded request parameters. These parameters must be arranged in the same order as those in Step 1.

Then, a canonicalized query string that follows the request structure is obtained. For more information, see Request structure.

Step 2: Create a string-to-sign

1. Create a `string-to-sign` . You can also use `percentEncode` to encode the canonicalized query string created in Step 1 based on the following rules:

```
StringToSign=
    HTTPMethod + "&" + //HTTPMethod: the HTTP method that is used to send a request, su
ch as GET.
    percentEncode("/") + "&" + //percentEncode("/"): Encode the forward slash (/) in UT
F-8 as %2F.
    percentEncode(CanonicalizedQueryString) // Encode the canonicalized query string cr
eated in Step 1.
```

2. Calculate the RFC 2104-compliant HMAC-SHA1 or HMAC-256 value of `StringToSign` . In the following example, Java Base64 is used:

```
String signature = Base64.getEncoder().encodeToString(signData);
```

> **Note**
>
> When you calculate the signature, the key value specified by RFC 2104 is your `AccessKey secret` plus an ampersand (&), which has an ASCII value of 38. For more information, see Obtain an AccessKey pair.

3. Encode the `Signature` parameter based on RFC 3986 and add it to the canonicalized query string.

Example 1: Concatenate parameters

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid and `AccessKeySecret` is set to testsecret. Perform the following operations:

1. Construct a canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

2. Create a `string-to-sign`.

```
GET&%2F&AccessKeyId%3Dtestid%26Action%3DGetOrganizationList%26Format%3DJSON%26Id%3D1%26Product%3Dascm%26RegionId%3Dcn-region-test%26SignatureMethod%3DHMAC-SHA1%26SignatureNonce%3D43967c6e-e3ad-44fa-b06b-fcf3db5f39d2%26SignatureVersion%3D1.0%26Timestamp%3D2020-09-15T08%253A50%253A40Z%26Version%3D2019-05-10
```

3. Calculate the signature.

   Calculate the signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ+uX5qY=`. Java Base64 is used in the following sample code:

   `String signature = Base64.getEncoder().encodeToString(signData);` Encode `Signature=hvqv9Ll5RE6kQ4YsQXFAf9VuRIY=` based on RFC 3986 and add it to the canonicalized query string.

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationList&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&SignatureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-15T08%3A50%3A40Z&Version=2019-05-10
```

You can use browsers or tools such as cURL and Wget to initiate an HTTP request for calling the `DescribeRegions` operation to query the Alibaba Cloud region list.

Example 2: Use the standard library of the programming language

`GetOrganizationList` is used in this example to query regions. For example, `AccessKeyID` is set to testid, `AccessKeySecret` is set to testsecret, and all request parameters are stored in a Java `Map<String, String>` object.

1. Predefine an encoding method.

```
private static final String ENCODING = "UTF-8";
private static String percentEncode(String value) throws UnsupportedEncodingException {
        return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").replace("*", "%2A").replace("%7E", "~") : null;
}
```

2. Predefine the time format for the `Timestamp` parameter. Specify the `Timestamp` parameter in the ISO 8601 format. The time must be in UTC+0.

```
private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
    SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
    df.setTimeZone(new SimpleTimeZone(0, "GMT"));
    return df.format(date);
}
```

3. Create a request string.

```
final String HTTP_METHOD = "GET";
Map parameters = new HashMap();
// Specify request parameters.
parameters.put("Product", "ascm");
parameters.put("Action", "GetOrganizationList");
parameters.put("Version", "2019-05-10");
parameters.put("AccessKeyId", "testid");
parameters.put("RegionId", "cn-region-test");
parameters.put("Timestamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1.0");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
parameters.put("Format", "JSON");
parameters.put("Id", "1");
// Arrange request parameters.
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);
final String SEPARATOR = "&";
// Create a string-to-sign.
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);
StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
    // Encode the key and the value.
    canonicalizedQueryString.append("&")
    .append(percentEncode(key)).append("=")
    .append(percentEncode(parameters.get(key)));
}
//Encode the canonicalized query string.
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

4. The signature. The key value used for calculation is `testsecret&` because `AccessKeySecret` is set to testsecret. The calculated signature is `OLeaidS1JvxuMvnyHOwuJ%2BuX5qY%3D`.

```
// The following sample code shows how to calculate the signature:
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";
Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));
String signature = Base64.getEncoder().encodeToString(signData);
```

Encode the Signature parameter based on RFC 3986 and add it to the canonicalized query string. The following URL is obtained:

```
https://public.asapi.aliyuns.com/asapi/v3/?AccessKeyId=testid&Action=GetOrganizationLis
t&Format=JSON&Id=1&Product=ascm&RegionId=cn-region-test&SignatureMethod=HMAC-SHA1&Signa
tureNonce=43967c6e-e3ad-44fa-b06b-fcf3db5f39d2&SignatureVersion=1.0&Timestamp=2020-09-1
5T08%3A50%3A40Z&Version=2019-05-10
```

5. Use browsers or tools such as cURL and Wget to initiate an HTTP request.

20.1.3.5.4. Response

Responses are returned only in the JSON format. If a return code is greater than or equal to 200 and less than 300, a success response is returned. Otherwise, an error response is returned.

Sample success response

If a request is successful, the request ID and operation-specific parameter values are returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": true,
    "RequestId": "xxxxxxxxxx",
    "Regions": { // The regions returned after you call the DescribeRegions operation.
        "Region": [
            {
                "RegionId": "",
                "RegionEndpoint": "",
                "LocalName": ""
            }
        ]
    }
}
```

Sample error response

If a request fails, the following information is returned. For more information, see the developer guide of the corresponding Apsara Stack service.

```
{
    "code": "asapi.server.api.notfound",// The error code.
    "eagleEyeTraceId": "xxx-xxx-xxx-xxx", // The trace ID provided by EagleEye.
    "asapiSuccess": false, // Indicates whether the request is successful.
    "hostId": "xxxx", // The ID of the host.
    "message": "Failed to ....", // The message returned.
    "asapiErrorMessage": "Failed to ....", // The error message provided by the ASAPI.
    "asapiErrorCode": "asapi.server.api.notfound" // The error code provided by the ASAPI.
}
```

20.1.4. Obtain an AccessKey pair

An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey pair is used to implement symmetric encryption to verify the identity of the requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain the AccessKey pair of an organization.

Prerequisites

Only the operation administrators or level-1 organization administrators can obtain the AccessKey pair of an organization.

Context

We recommend that you use the AccessKey pair of a personal account to call Apsara Uni-manager and cloud service APIs. When you use the AccessKey pair of a personal account, you must configure header parameters in the following table for access control.

Parameter	Description
x-acs-regionid	The region ID, such as cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager console.
x-acs-instanceid	The ID of the instance on which you want to perform operations.

Warning The AccessKey pairs of personal accounts are managed by the Apsara Uni-manager permission system. AccessKey pairs of organization accounts have higher permissions. For security purposes, organization operations must be approved by administrators.

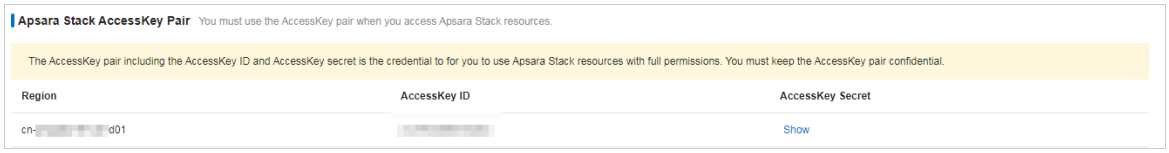
Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User**

Information.

3. In the **Apsara Stack AccessKey Pair** section, view your AccessKey pair.



> **Note** The AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs allow you to access Apsara Stack resources with full permissions for your account. You must keep your AccessKey pair confidential.

Obtain the AccessKey pair of an organization

To obtain the AccessKey pair of an organization, perform the following operations:

1. In the address bar, enter the URL of the Apsara Uni-manager Management Console. Press the Enter key.
2. Enter your username and password.

   Obtain the username and password that you can use to log on to the console from the operations administrator.

   > **Note** When you log on to the Apsara Uni-manager Management Console for the first time, you must change the password of your username. Your password must meet complexity requirements. The password must be 8 to 20 characters in length and must contain at least two of the following character types:
   >
   > - Uppercase or lowercase letters
   > - Digits
   > - Special characters, which include ! @ # $ %

3. Click **Login**.
4. In the top navigation bar, click **Enterprise**.
5. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
6. In the organization navigation tree, click an organization name.
7. In the Current Organization section, click **Obtain an accesskey**.
8. In the AccessKey message, view the AccessKey pair of the organization.

   > **Note** An AccessKey pair is automatically allocated to each level-1 organization. Subordinate organizations use the same AccessKey pair of their level-1 organization.

20.1.5. Obtain an endpoint

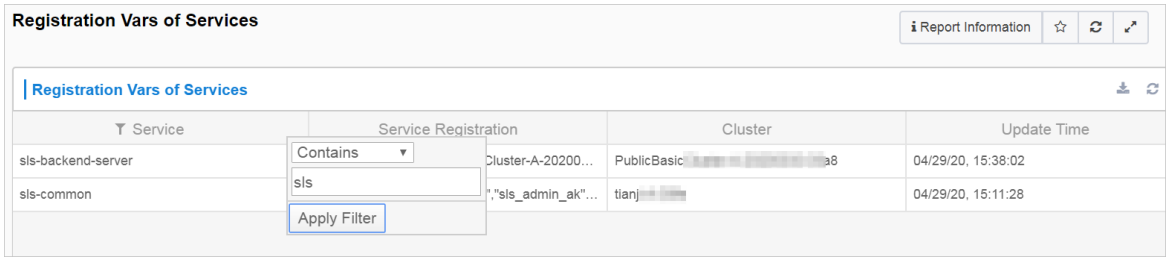
You can obtain an endpoint of a service in the Apsara Uni-manager Operations Console.

Procedure

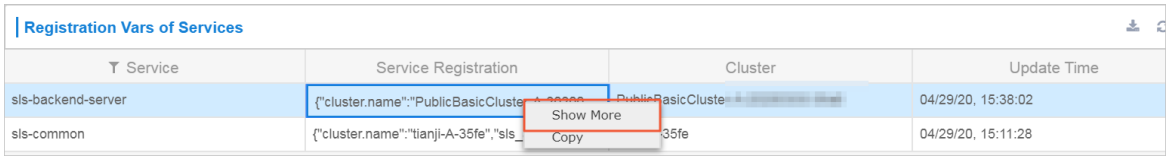
1. Log on to the Apsara Uni-manager Operations Console.

For more information, see Log on to the API Tool console.

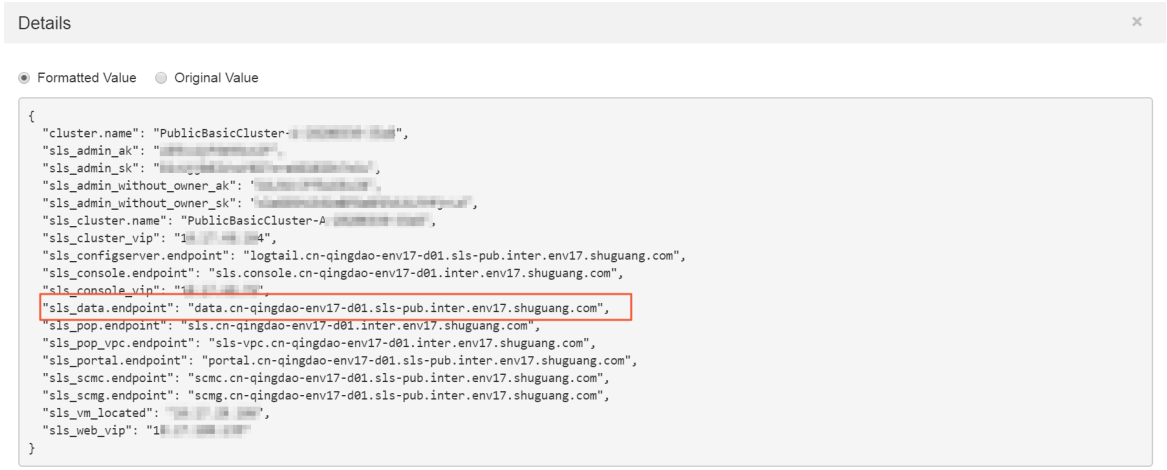
2. In the left-side navigation pane, choose **Products > Product List > Apsara Stack O&M**.
3. Click **Apsara Infrastructure Management Framework** to go to the Apsara Infrastructure Management Framework console.
4. In the left-side navigation pane, click **Reports** to open the **All Reports** page.
5. In the Report column, click **Registration Vars of Services**.
6. In the dialog box that appears, click the icon in the column, enter **sls** in the search box, and then click **Apply Filter**.



7. Right-click the service in the **Service Registration** column of **sls-backend-server**, and then click **Show More**.



8. In the **Details** dialog box, view the endpoint of Log Service.



21.Apsara Stack DNS

21.1. Developer Guide

21.1.1. Overview

21.1.1.1. Calling methods

You can use a pair of AccessKey ID and AccessKey Secret to call API operations. You can use SDKs of different languages, or create a client based on the signature description provided by the POP gateway.

21.1.1.2. Supported formats

- AccessKey ID and AccessKey Secret of an Apsara Stack tenant account
- Temporary AccessKey ID and AccessKey Secret of an Apsara Stack tenant account
- AccessKey ID and AccessKey Secret of a RAM user account
- Temporary AccessKey ID and AccessKey Secret of a RAM user account

21.1.1.3. Instructions

- The AccessKey ID is used to identify users.
- The AccessKey Secret is used to compute the request signature.

21.1.1.4. Time format

Unless otherwise specified, the time string is a UTC+0 time in the format of YYYY-MM-DDTHH:mm:ssZ. For example, 2018-01-16T09:00:01Z indicates 17:00:01 on January 16, 2018, in China Standard Time (UTC+8).

21.1.2. List of operations by function

DNS V2.0 provides the following API operations.

API	Description
ObtainGlobalAuthZoneList	Obtains global authoritative zones
ObtainGlobalAuthRecordList	Obtains global authoritative RRSets
AddGlobalRrSet	Adds global RRSets
DeleteGlobalRrSet	Deletes global RRSets
UpdateGlobalRrSet	Updates global RRSets
RemarkGlobalRrSet	Configures descriptions for global RRSets

21.1.3. Prerequisites

21.1.3.1. Obtain an AccessKey pair

An AccessKey pair consists of an AccessKey ID and an AccessKey secret. The AccessKey pair is used to implement symmetric encryption to verify the identity of the requester. The AccessKey ID is used to identify a user. The AccessKey secret is used to encrypt the signature string. This topic describes how to obtain an AccessKey pair.

Prerequisites

Only operations administrators and level-1 organization administrators can obtain the AccessKey pair of an organization.

Context

We recommend that you use the AccessKey pair of a personal account to call the API operations of the Apsara Uni-manager Management Console and cloud services. When you use the AccessKey pair of a personal account, you must configure header parameters as described in the following table for access control.

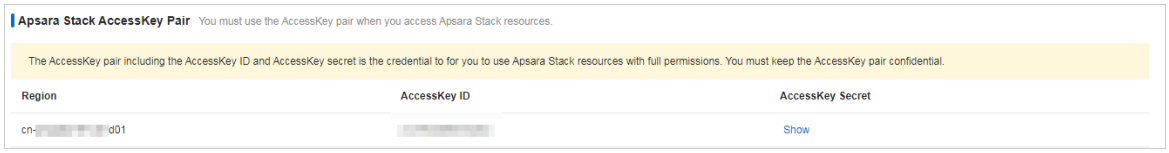
Parameter	Description
x-acs-regionid	The region ID, such as cn-hangzhou-*.
x-acs-organizationid	The ID of the organization in the Apsara Uni-manager Management Console.
x-acs-resourcegroupid	The ID of the resource set in the Apsara Uni-manager Management Console.
x-acs-instanceid	The ID of the instance on which you want to perform operations.

Warning The AccessKey pairs of personal accounts are under control of the Apsara Uni-manager Management Console permission system. AccessKey pairs of organization accounts have higher permissions. For security purposes, organization operations must be approved by administrators.

Obtain the AccessKey pair of a personal account

To obtain the AccessKey pair of a personal account, perform the following operations:

1. Log on to the Apsara Uni-manager Management Console.
2. In the upper-right corner of the homepage, move the pointer over the profile picture and click **User Information**.
3. In the **Apsara Stack AccessKey Pair** section, view your AccessKey pair.



> **Note** The AccessKey pair consists of an AccessKey ID and an AccessKey secret. AccessKey pairs allow you to access Apsara Stack resources with full permissions for your account. You must keep your AccessKey pair confidential.

Obtain the AccessKey pair of an organization

To obtain the AccessKey pair of an organization, perform the following operations:

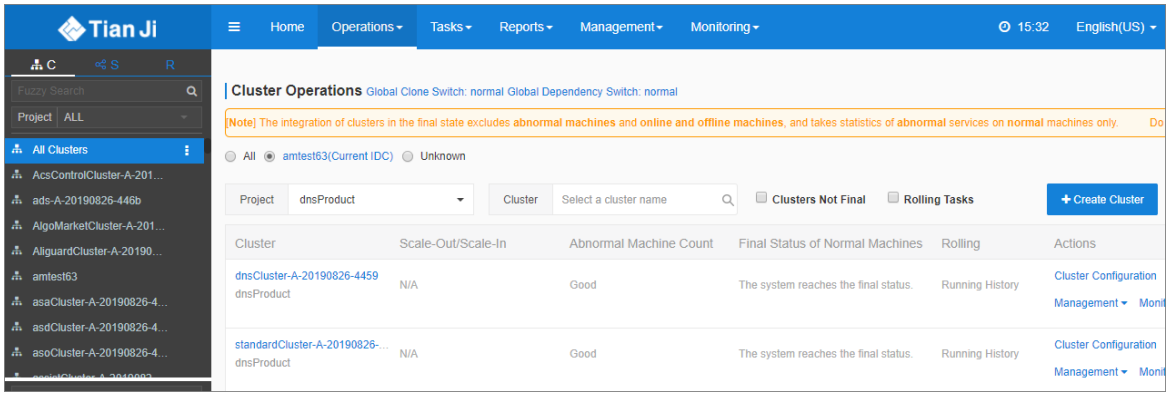
1. Log on to the Apsara Uni-manager Management Console as an administrator.
2. In the top navigation bar, click **Enterprise**.
3. In the left-side navigation pane of the **Enterprise** page, click **Organizations**.
4. In the organization navigation tree, click an organization name.
5. In the Current Organization section, click **Obtain an accesskey**.
6. In the AccessKey message, view the AccessKey pair of the organization.

> **Note** An AccessKey pair is automatically allocated to each level-1 organization. Subordinate organizations use the same AccessKey pair of their level-1 organization.

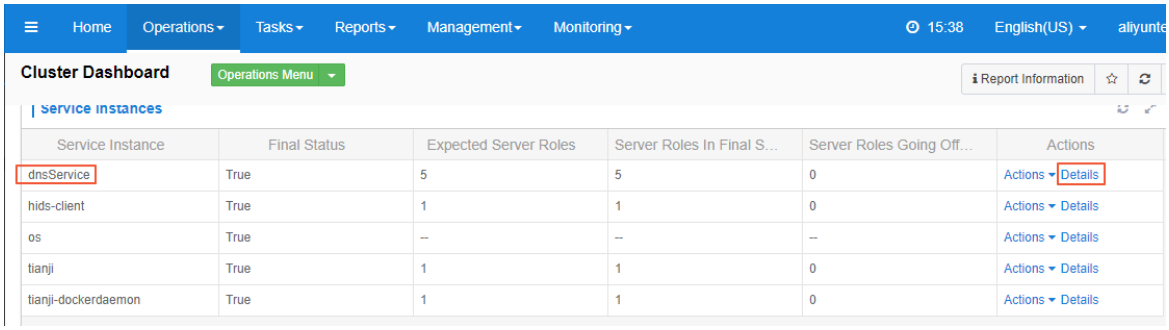
21.1.3.2. Obtain an endpoint

Procedure

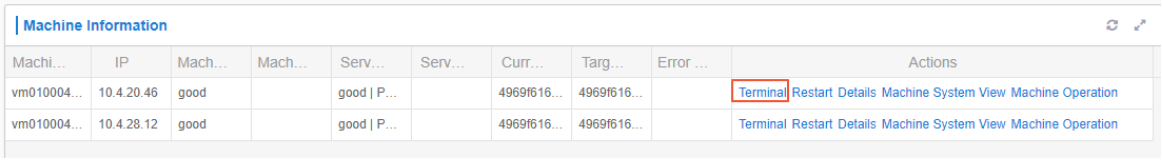
1. Log on to the Apsara Infrastructure Management Framework console as an administrator.
2. In the top navigation bar, choose **Operations > Cluster Operations**.
3. On the **Cluster Operations** page, select *dnsProduct* from the **Project** drop-down list.



4. In the Service Instances section, click **Details** in the Actions column corresponding to dnsService.



5. In the Machine Information section, click **Terminal** in the Actions column corresponding to a server to go to the console.



6. Run the `sudo docker ps -l` command to obtain the ID of the current container.
7. Run the `sudo docker inspect ${container id} |grep env` command to obtain the endpoint of the current environment.

   The endpoint is the value corresponding to pop_out_endpoint (the string starting with "api.").

21.1.4. SDK example

21.1.4.1. Create a client

You need to specify a region ID, AccessKey ID, and AccessKey Secret to create a client.

Go SDK

```
1.    if client, err := genesisdns.NewClientWithAccessKey(RegionId, AccessKey, AccessSecret
); err == nil  {
2.      //Normal business logic
3.    } else {
4.      //Business logic to handle exceptions
5.    }
```

Python SDK

```
1.    from aliyunsdkcore.client import AcsClient
2.    from aliyunsdkcore.acs_exception.exceptions import ClientException
3.    from aliyunsdkcore.acs_exception.exceptions import ServerException
4.
5.
6.    client = AcsClient("<access-key-id>",
7.       "<access-key-secret>",
8.       "<region-id>");
```

Java SDK

```
1.    public static void main(String[] args) {
2.         DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret
}");
3.         IAcsClient client = new DefaultAcsClient(profile);
4.    }
```

21.1.4.2. Obtain global authoritative zones

Go SDK

```
1. if client, err := genesisdns.NewClientWithAccessKey("{regionid}","{ak}", "{secret}"); er
r == nil {
2.     request := genesisdns.CreateObtainGlobalAuthZoneListRequest()
3.     request.SetDomain("{endpoint}")
4.     if response, err := client.ObtainGlobalAuthZoneList(request); err == nil {
5.         fmt.Println(response.ZoneList)
6.     }
7. }
```

Python SDK

```
1. client = AcsClient("{ak}", "{secret}", "{regionid}");
2.
3. request = ObtainGlobalAuthZoneListRequest.ObtainGlobalAuthZoneListRequest()
4. request.set_PageSize(10)
5. region_provider.modify_point("GenesisDns", "{regionid}","{endpoint}")
6. try:
7.     response = client.do_action_with_exception(request)
8.     print(response)
9. except ServerException as e:
10.     print(e)
11. except ClientException as e:
12.     print(e)
```

Java SDK

```
public static void main(String[] args) {
    DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}");
    IAcsClient client = new DefaultAcsClient(profile);
    ObtainGlobalAuthZoneListRequest request = new ObtainGlobalAuthZoneListRequest();
    try {
        request.setEndpoint("{endpoint}");
        request.setConnectTimeout(1000);
        request.setReadTimeout(1000);
        request.setPageSize(10);
        ObtainGlobalAuthZoneListResponse response = client.getAcsResponse(request);
        System.out.println(JSON.toJSONString(response.getZoneList()));
    } catch (Exception ex) {
        System.out.println(ex.getMessage());
    }
}
```

21.1.4.3. Obtain global authoritative RRSets

Go SDK

```
if client, err := genesisdns.NewClientWithAccessKey("{regionid}","{ak}", "{secret}"); err == nil {
    request := genesisdns.CreateObtainGlobalAuthRecordListRequest()
    request.SetDomain("{endpoint}")
    request.Id = requests.Integer("{zone id}")
    if response, err := client.ObtainGlobalAuthRecordList(request); err == nil {
        fmt.Println(response.Records)
    }
}
```

Python SDK

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.profile import region_provider
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkgenesisdns.request.v20180925 import ObtainGlobalAuthRecordListRequest

client = AcsClient("{ak}", "{secret}", "{regionid}")

request = ObtainGlobalAuthRecordListRequest.ObtainGlobalAuthRecordListRequest()
request.set_PageSize(10)
request.set_Id({zone id})
region_provider.modify_point("GenesisDns", "{regionid}", "{endpoint}")
try:
    response = client.do_action_with_exception(request)
    print(response)
except ServerException as e:
    print(e)
except ClientException as e:
    print(e)
```

Java SDK

```
public static void main(String[] args) {
    DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}");
    IAcsClient client = new DefaultAcsClient(profile);
    ObtainGlobalAuthRecordListRequest request = new ObtainGlobalAuthRecordListRequest();
    try {
        request.setEndpoint("{endpoint}");
        request.setConnectTimeout(1000);
        request.setReadTimeout(1000);
        request.setPageSize(10);
         request.setId(Long.parseLong("{zone id}"));
         ObtainGlobalAuthRecordListResponse response = client.getAcsResponse(request);
         System.out.println(JSON.toJSONString(response.getRecords()));
    } catch (Exception ex) {
        System.out.println(ex.getMessage());
    }
}
```

21.1.4.4. Add global RRSets

The following examples describe how a Resource Record Set (RRSet) is defined.

```
1.          request.RrSet = "[\"2001:0:0:0:0:0:0:1\"]" //A RRSet with an AAAA record
2.          request.RrSet = "[\"2001:0:0:0:0:0:0:1\", \"2001::2\"]" //A RRSet with two AAAA
records
3.          request.RrSet = "[\"2001:0:0:0:0:0:0:1 10\", \"2001::2 10\"]" //A RRSet with two
weighted AAAA records
4.          request.Type = "AAAA"
5.
6.          request.RrSet = "[\"www.aliyun.com. \"]" //A RRSet with a CNAME record
7.          request.RrSet = "[\"www.aliyun.com. 10\",\"www.taobao.com 30\"]" //A RRSet with
two weighted CNAME records
8.          request.Type = "CNAME"
9.
10.          request.RrSet = "[\"10 mailserver1.example.com. \"]" //A RRSet with an MX recor
d
11.          request.Type = "MX"
12.
13.          request.RrSet = "[\"10 mailserver1.example.com.\",\"20 mailserver2.example.com.
\"]" //A RRSet with two MX records
14.          request.RrSet = "[\"v=spf1 ip4:192.168.0.1/16 ip6:2001::1/96 ~all\"]" //A RRSet
with a TXT record
15.          request.Type = "TXT"
16.
17.          request.RrSet = "[\"1 10 8080 www1.example.com.\", \"2 20 8081 www2.example.com
. \"]" //A RRSet with two SRV records
18.          request.Type = "SRV"
19.
20.          request.RrSet = "[\"100 50 \\\"S\\\" \\\"Z3950+I2L+I2C\\\" \\\"\\\" _z3950._tcp
.example.com. \"]" //A RRSet with a NAPTR record
21.          request.Type = "NAPTR"
22.
23.          request.RrSet = "[\"0 issue \\\"caa.example.com\\\"\",\"0 issuewild \\\";\\\"\"
]" //A RRSet with a CAA record
24.          request.Type = "CAA"
25.
26.          request.RrSet = "[\"inner-ns1.example01.com. hostmaster.example01.com. 1 7200 9
00 1209600 86400\"]" //A RRSet with an SOA record
27.          request.Type = "SOA"
28.
29.          request.RrSet = "[\"ns1.example.com.\",\"ns2.example.com. \"]" //A RRSet with t
wo NS records
30.          request.Type = "NS"
```

Go SDK

```
1. func main()  {
2.     if client, err := genesisdns.NewClientWithAccessKey("{regionid}","{ak}", "{secret}")
; err == nil {
3.         request := genesisdns.CreateAddGlobalRrSetRequest()
4.         request.SetDomain("{endpoint}")
5.         request.ZoneId = requests.Integer("{zone id}")
6.         request.Ttl = requests.Integer("300")
7.         request.Type = "A"
8.         request.RrSet = "[\"1.1.1.1\"]"
9.         request.Rr = "sdka"
10.
11.         if response, err := client.AddGlobalRrSet(request); err == nil {
12.             fmt.Println(response.RequestId, response.Id)
13.         }
14.     }
15. }
```

Python SDK

```
1. from aliyunsdkcore.client import AcsClient
2. from aliyunsdkcore.profile import region_provider
3. from aliyunsdkcore.acs_exception.exceptions import ClientException
4. from aliyunsdkcore.acs_exception.exceptions import ServerException
5. from aliyunsdkgenesisdns.request.v20180925 import AddGlobalRrSetRequest
6.
7. client = AcsClient("{ak}", "{secret}", "{regionid}")
8.
9. request = AddGlobalRrSetRequest.AddGlobalRrSetRequest()
10. request.set_ZoneId(93)
11. request.set_Rr("sdk_python_a")
12. request.set_RrSet("[\"3.3.3.3\"]")
13. request.set_Ttl(300)
14. request.set_Type("A")
15.
16. region_provider.modify_point("GenesisDns", "{regionid}", "{endpoint}")
17. try:
18.     response = client.do_action_with_exception(request)
19.     print(response)
20. except ServerException as e:
21.     print(e)
22. except ClientException as e:
23.     print(e)
```

Java SDK

```
public static void main(String[] args) {
    DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}");
    IAcsClient client = new DefaultAcsClient(profile);
    AddGlobalRrSetRequest request = new AddGlobalRrSetRequest();
    try {
        request.setEndpoint("{endpoint}");
        request.setConnectTimeout(1000);
        request.setReadTimeout(1000);
        request.setZoneId(Long.parseLong("93"));
         request.setRr("sdk_java_a");
         request.setTtl(300);
         request.setType("A");
         request.setRrSet("[\"1.1.1.1\", \"2.2.2.2\"]");
         AddGlobalRrSetResponse response = client.getAcsResponse(request);
         System.out.println(JSON.toJSONString(response));
    } catch (Exception ex) {
        System.out.println(ex.getMessage());
    }
}
```

21.1.4.5. Delete global RRSets

Go SDK

```
package main

import (
    "fmt"
    "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
    "github.com/aliyun/alibaba-cloud-sdk-go/services/genesisdns"
)

func main()  {
     if client, err := genesisdns.NewClientWithAccessKey("{regionid}","{ak}", "{secret}"); err == nil {
         request := genesisdns.CreateDeleteGlobalRrSetRequest()
         request.SetDomain("{endpoint}")
         request.Id = requests.Integer("{rrSet id")

         if response, err := client.DeleteGlobalRrSet(request); err == nil {
             fmt.Println(response.RequestId)
         }
     }
 }
```

Python SDK

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.profile import region_provider
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkgenesisdns.request.v20180925 import DeleteGlobalRrSetRequest

client = AcsClient("{ak}", "{secret}", "{regionid}")

request = DeleteGlobalRrSetRequest.DeleteGlobalRrSetRequest()
 request.set_Id(170)

 region_provider.modify_point("GenesisDns", "{regionid}", "{endpoint}")
 try:
     response = client.do_action_with_exception(request)
     print(response)
 except ServerException as e:
     print(e)
 except ClientException as e:
     print(e)
```

Java SDK

```
public static void main(String[] args) {
    DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}
");
    IAcsClient client = new DefaultAcsClient(profile);
    DeleteGlobalRrSetRequest request = new DeleteGlobalRrSetRequest();
    try {
        request.setEndpoint("{endpoint}");
        request.setConnectTimeout(1000);
        request.setReadTimeout(1000);
        request.setId(Long.parseLong("{RrSet id}"));
         DeleteGlobalRrSetResponse response = client.getAcsResponse(request);
         System.out.println(JSON.toJSONString(response));
     } catch (Exception ex) {
         System.out.println(ex.getMessage());
     }
```

21.1.4.6. Update global RRSets

Go SDK

```
package main

import (
    "fmt"
    "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
    "github.com/aliyun/alibaba-cloud-sdk-go/services/genesisdns"
)

func main()  {
     if client, err := genesisdns.NewClientWithAccessKey("{regionid}","{ak}", "{secret}"); err == nil {
          request := genesisdns.CreateUpdateGlobalRrSetRequest()
          request.SetDomain("{endpoint}")
          request.RrsetId = requests.Integer("{RrSet id}")
          request.Rr = "go_sdk_a"
          request.RrSet = "[\"8.8.8.8\"]"
          request.Ttl = requests.Integer("300")
          request.Type = "A"


          if response, err := client.UpdateGlobalRrSet(request); err == nil {
              fmt.Println(response.RequestId)
          }
      }
 }
```

Python SDK

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.profile import region_provider
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkgenesisdns.request.v20180925 import UpdateGlobalRrSetRequest

client = AcsClient("{ak}", "{secret}", "{regionid}")

request = UpdateGlobalRrSetRequest.UpdateGlobalRrSetRequest()
 request.set_RrsetId(165)
 request.set_Type("A")
 request.set_Rr("sdk_python_a")
 request.set_RrSet("[\"3.3.3.3\"]")
 request.set_Ttl(300)

 region_provider.modify_point("GenesisDns", "{regionid}", "{endpoint}")
 try:
     response = client.do_action_with_exception(request)
     print(response)
 except ServerException as e:
     print(e)
 except ClientException as e:
     print(e)
```

Java SDK

```
1.    public static void main(String[] args) {
2.        DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}
");
3.        IAcsClient client = new DefaultAcsClient(profile);
4.        UpdateGlobalRrSetRequest request = new UpdateGlobalRrSetRequest();
5.        try {
6.            request.setEndpoint("{endpoint}");
7.            request.setConnectTimeout(1000);
8.            request.setReadTimeout(1000);
9.            request.setRrsetId(Long.parseLong("165"));
10.            request.setRr("sdk_java_a");
11.            request.setRrSet("[\"4.4.4.4\"]");
12.            request.setTtl(300);
13.            request.setType("A");
14.
15.            UpdateGlobalRrSetResponse response = client.getAcsResponse(request);
16.            System.out.println(JSON.toJSONString(response));
17.        } catch (Exception ex) {
18.            System.out.println(ex.getMessage());
19.        }
20.    }
```

21.1.4.7. Configure descriptions for global RRSets

Go SDK

```
1. package main
2.
3. import (
4.     "fmt"
5.     "github.com/aliyun/alibaba-cloud-sdk-go/sdk/requests"
6.     "github.com/aliyun/alibaba-cloud-sdk-go/services/genesisdns"
7. )
8.
9. func main()  {
10.     if client, err := genesisdns.NewClientWithAccessKey(""{regionid}","{ak}", "{secret}
"); err == nil {
11.         request := genesisdns.CreateRemarkGlobalRrSetRequest()
12.         request.SetDomain("{endpoint}")
13.         request.Id = requests.Integer("165")
14.         request.Remark = "go remark"
15.
16.
17.         if response, err := client.RemarkGlobalRrSet(request); err == nil {
18.             fmt.Println(response.RequestId)
19.         }
20.     }
21. }
```

Python SDK

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.profile import region_provider
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkgenesisdns.request.v20180925 import RemarkGlobalRrSetRequest

client = AcsClient("{ak}", "{secret}", "{regionid}")

request = RemarkGlobalRrSetRequest.RemarkGlobalRrSetRequest()
request.set_Id(165)
request.set_Remark("test remark python")
region_provider.modify_point("GenesisDns", "{regionid}", "{endpoint}")
try:
    response = client.do_action_with_exception(request)
    print(response)
except ServerException as e:
    print(e)
except ClientException as e:
    print(e)
```

Java SDK

```
public static void main(String[] args) {
    DefaultProfile profile = DefaultProfile.getProfile("{regionid}","{ak}", "{secret}");
    IAcsClient client = new DefaultAcsClient(profile);
    RemarkGlobalRrSetRequest request = new RemarkGlobalRrSetRequest();
    try {
        request.setEndpoint("{endpoint}");
        request.setConnectTimeout(1000);
        request.setReadTimeout(1000);
        request.setId(Long.parseLong("165"));
         request.setRemark("test java remark");

         RemarkGlobalRrSetResponse response = client.getAcsResponse(request);
         System.out.println(JSON.toJSONString(response));
    } catch (Exception ex) {
        System.out.println(ex.getMessage());
    }
}
```